Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

SHOUT
SHARE
IT

UNITED STATES DEPARTMENT OF AGRICULTURE

DEPARTMENT BULLETIN No. 1242

Washington, D. C. ▼ September 2, 1924

MARKETING CABBAGE

By

ALEXANDER E. CANCE, Consulting Specialist

and

GEORGE B. FISKE, Investigator in Marketing Fruits and Vegetables

Bureau of Agricultural Economics

CONTENTS

	Page
Development and Changes	1
Classes, Types, and Varieties	2
Commercial Production	3
Principal Commercial Producing Regions	4
Growing and Harvesting	10
Financing	10
Shipping Seasons	12
Country Selling Methods	15
Packing, Grading, and Shipping	18
Loading	20
Transportation Problems	22
Farm and Commercial Storage	23
Use in Kraut	26
Distribution of the Commercial Crop	27
Sources of City Supply	36
Seasonal Consumption	37
Wholesale Marketing	37
Special Features of Great Markets	39
Market Preferences and Specialties	41
Use of the Market Reports	42
Price Tendencies	43
Cost of Marketing	46
Summary of Facts and Figures	47

WASHINGTON
GOVERNMENT PRINTING OFFICE
1924

UNITED STATES DEPARTMENT OF AGRICULTURE

DEPARTMENT BULLETIN No. 1242

Washington, D. C. ▼ September 2, 1924

MARKETING CABBAGE [1]

By ALEXANDER E. CANCE, *Consulting Specialist*, and GEORGE B. FISKE, *Investigator in Marketing Fruits and Vegetables.*

CONTENTS.

	Page.		Page.
Development and changes	1	Use in kraut	26
Classes, types, and varieties	2	Distribution of the commercial crop	27
Commercial production	3	Sources of city supply	36
Principal commercial producing regions	4	Seasonal consumption	37
Growing and harvesting	10	Wholesale marketing	37
Financing	10	Special features of great markets	39
Shipping seasons	12	Market preferences and specialties	41
Country selling methods	15	Use of the market reports	42
Packing, grading, and shipping	18	Price tendencies	43
Loading	20	Cost of marketing	46
Transportation problems	22	Summary of facts and figures	47
Farm and commerical storage	23		

DEVELOPMENT AND CHANGES.

Progress of the commercial cabbage industry has been marked for a decade by the growth of newer shipping sections rather than by total increases. Production has extended westward where climate is favorable and markets are relatively good, and it has gained in the South in response to increasing demand and better shipping facilities for out-of-season vegetables.

Shortly after the Civil War early vegetables, including cabbage for northern markets, were grown in the peninsular region about Chesapeake Bay. As production extended southward to Florida and the Gulf States, Virginia and the Carolinas lost much of their relative advantage in the production of early cabbage, and the attention of growers in those States was shifted somewhat to the late crop and to other vegetables. On the other hand, early southern stock had begun moving northward from Mobile by 1880 and increased enormously in quantity during the following 10 years. Florida, Texas, and California were important producers by 1910; in 1919 Florida and Texas followed Virginia in acreage; and from 1918 to 1924 they exceeded that State in average volume of shipments.

Northern producing States have been led by New York since the introduction of Danish cabbage in 1887. Wisconsin advanced to

[1] Acknowledgment for material and revision is made to the Divisions of Statistical and Historical Research, Agricultural Finance, Agricultural Cooperation and Cost of Marketing of the Bureau of Agricultural Economics; also to J. H. Beattie, of the Bureau of Plant Industry.

second place after the development of varieties resistant to yellows and black rot. The 10 States with greatest cabbage acreage in 1909 were New York, Wisconsin, Virginia, Ohio, Pennsylvania, Illinois, New Jersey, Texas, Michigan, and California, ranking in the order named. In 1919 they were New York, Wisconsin, Pennsylvania, Virginia, California, Florida, Texas, Michigan, Ohio, and New Jersey.

The last census report and the annual acreage estimates for the United States show, for the decade 1910 to 1920, no sustained increases in the total acreage of cabbage. During the last 20 years New York, Virginia, and Iowa have decreased their acreage considerably; Wisconsin, Minnesota, and Colorado have doubled theirs; and Florida and California have added 6,000 acres to the early crop. Texas acreage has had a rapid but irregular growth, showing no net increase during the last census period, and varying in recent years roughly from 5,000 to 16,000 acres.

The trend has been toward development of cabbage sections farther from the consuming centers. On the other hand, the increase of cabbage production in the Middle West must be credited to consumption in the same region. This is indicated by the continued reappearance of New York cabbage on the Chicago market. Higher freight charges in recent years and transportation by motor trucks have tended to favor the marketing of home-grown cabbage in season, though the great bulk of the city supply still comes in car lots from more or less distant sections.

Acreage and production of the leading cabbage States are shown in Tables 1, 2, 3, and 9.

CLASSES, TYPES, AND VARIETIES.

The market cabbage supply may be divided into three groups: (1) Early or southern; (2) late, main crop, northern or storage; (3) intermediate or mid-season. They are known mostly as early or late, with the mid-season usually classified as late.

Early cabbage is harvested from January to July and may be either first-crop cabbage planted from December onward and harvested early in the spring, or second crop of which there is a comparatively small quantity planted in the fall and harvested in the winter. Nearly all of the early cabbage is of the early-maturing domestic type. According to shape it is known either as *flat*, such as Flat Dutch and its numerous related varieties, or *pointed*, such as the Wakefield under various names, the Early Jersey Wakefield, Charleston Wakefield, and the Winnigstadt, a somewhat later-maturing variety.

The pointed varieties are much less compact than the flat varieties (fig. 1) and constitute the bulk of the cabbage grown for early shipments. This cabbage is a market favorite because of its early maturity, its convenient size for family requirements, and the ease with which it may be packed in the roundish hampers commonly used for very early shipment. The flat varieties yield more heavily but mature somewhat later.

The late or main-crop cabbage, harvested from July to December, consists of two types: The domestic, flat or roundish in shape, of which the Enkhuizen, Succession, Mid Season, and Copenhagen Market are the best known; and the Danish, with hard heads somewhat oval in shape, of which the Ballhead, Roundhead, and Cannon-

ball are the best known. The domestic type does not keep so well as the Danish and is seldom put into storage. It is mostly marketed from the field before December and is the kind used for kraut. The Danish is a good keeper, and most of the storage cabbage is of this type. The late commercial crop is divided almost equally between domestic and Danish types (fig. 2.)

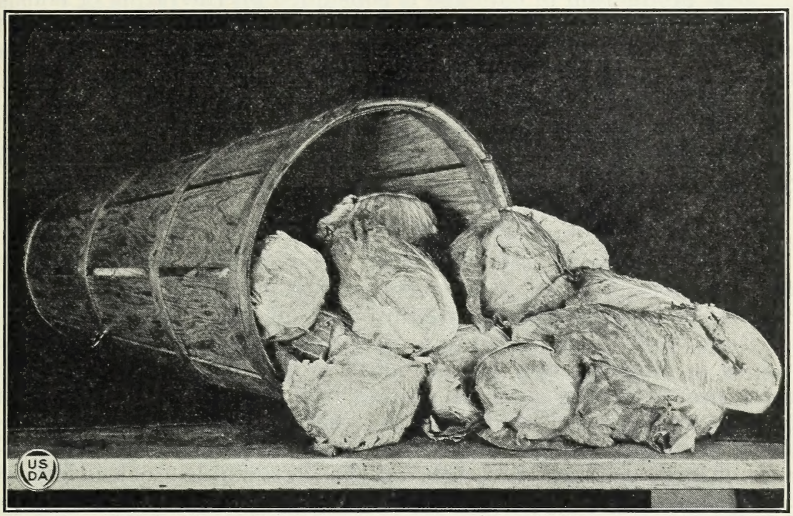

FIG. 1.—Hamper of No. 1 Florida pointed type cabbage.

Intermediate or mid-season cabbage is harvested midway between the early and the late and comprises most of the crop which comes on the market between June and September. In a general way mid-season cabbage may be included with the late crop although numerous early varieties are grown. In fact, it is impossible to draw a very definite line of distinction between early and late cabbage, especially that grown in mid season.

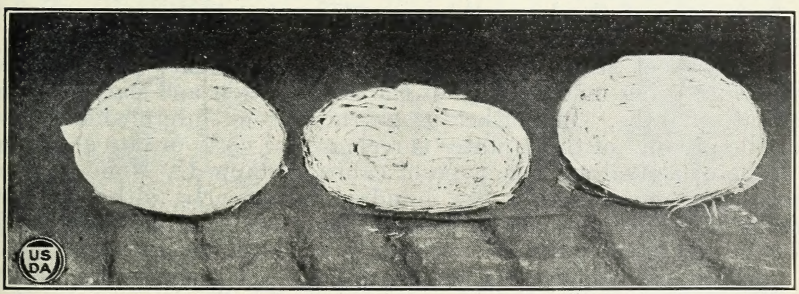

FIG. 2.—Danish and domestic types (cross sections); domestic in center.

COMMERCIAL PRODUCTION.

The commercial supply of cabbage is about 850,000 tons, or 68,000 carloads annually. It may be divided into three parts: (1) Car-lot shipments, which average about 31,000 cars, a little less than half of the total; (2) cabbage for kraut, which equals about

10,000 carloads, or approximately one-seventh of the crop; (3) that which is known as home grown, that is, cabbage that is sold in the local markets and delivered by wagon or truck from the farms, but does not appear in the report of car lot shipments. Home growns probably average one-third or more of the total commercial crop.

In addition to the commercial supply a comparatively large part of the total production of cabbage is consumed on the farms or consists of culls, waste, and unmarketable cabbage which does not leave the farm. The quantity of cabbage consumed on the farms and of home-growns can not be determined with any degree of accuracy. It has been estimated that from 5 to 25 per cent of the cabbage supply of the great cities is home grown, but the proportion varies greatly in the different markets. Of course, many small markets are supplied with a very large proportion of near-by stock.

THE CAR LOT SUPPLY.

The proportion of the estimated crop shipped as car lots has varied in recent years from considerably less than half to nearly three-fifths of the total estimated production, but averages somewhat less than half. The variation in production and in proportion shipped is much greater for the early crop. In years of extremely heavy production in sections remote from the principal consuming markets, such as in Florida, Texas, California, and Colorado, much of the available supply may fail to find a profitable market. In years of light production, nearly all the marketable stock is shipped. Production of late cabbage is less variable. An extreme variation of 6,000 cars between the smallest and the greatest of the early crop shipments compared with 4,500 cars variation in the late crop occurred during the five seasons 1918 to 1923, exclusive of the very short crop of 1919.

PRINCIPAL COMMERCIAL PRODUCING REGIONS.

Florida, Texas, South Carolina, Virginia, and California, in the order mentioned, produce about five-sixths of the early cabbage shipments and one-third of the total commercial car lot crop. Almost three-fourths of the late cabbage and nearly all the storage stock shipped after December 1 come from New York and Wisconsin.

A number of States may be classed as intermediate (see Table 3), shipments being made partly in the early season and partly during the late months. In market usage there is no intermediate class, but the product of these States is reckoned as early or late according to time of arrival and the type of cabbage shipped. None of these States ship more than a few hundred cars yearly, although New Jersey, Ohio, Illinois, Iowa, Missouri, and others supply large additional quantities for the local market or for kraut manufacture.

Commercial cabbage regions by States and counties are shown in Figure 3 page 5. Car lot shipments for five years, classified according to the active market seasons, and other details are shown in Tables 3, 4, and 5.

A general description of several leading and representative early and late commercial cabbage sections is given in the following pages. Methods of marketing in the various sections are included in the subsequent descriptions of financing, harvesting, packing, selling, transportation, and market distribution.

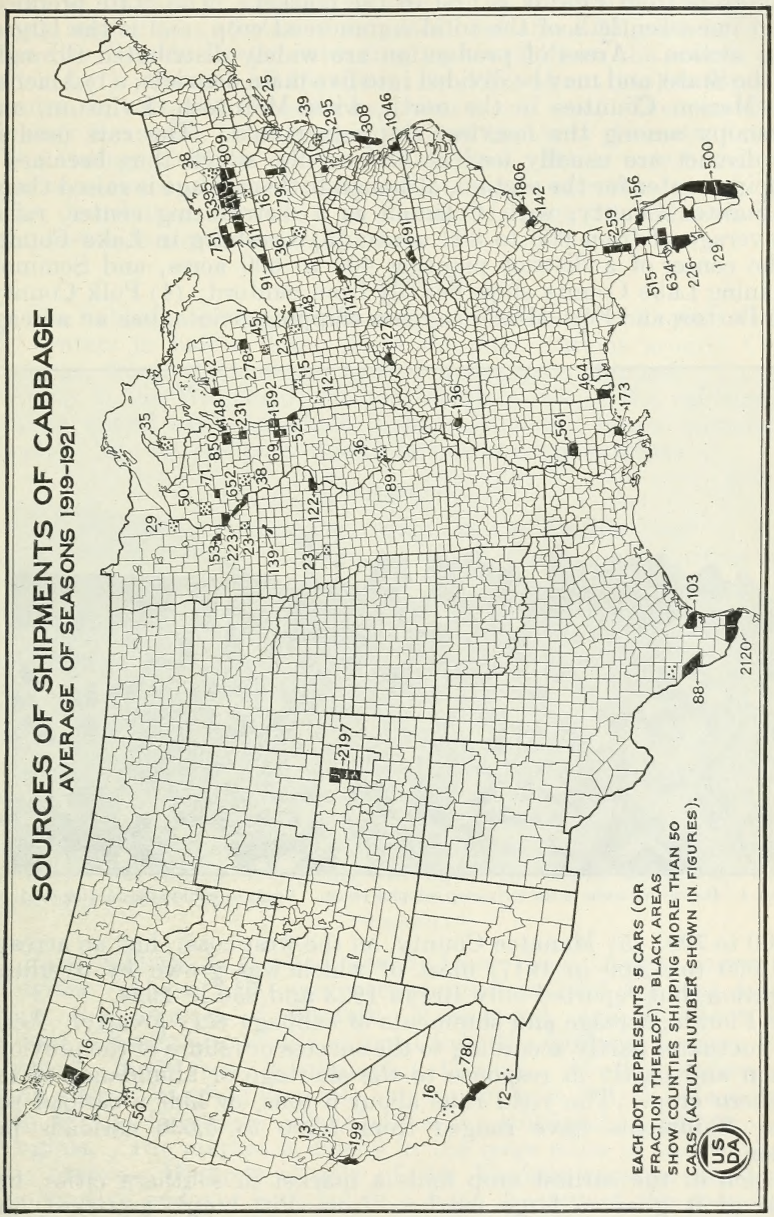
SOURCES OF SHIPMENTS OF CABBAGE
AVERAGE OF SEASONS 1919-1921
EACH DOT REPRESENTS 5 CARS (OR FRACTION THEREOF). BLACK AREAS SHOW COUNTIES SHIPPING MORE THAN 50 CARS. (ACTUAL NUMBER SHOWN IN FIGURES).
USDA

FIG. 3.—Principal cabbage shipping sections.

EARLY CABBAGE SECTIONS.

FLORIDA.

Cabbage from Florida is first in the market. The State produces about one-twentieth of the total commercial crop, and is the largest early section. Areas of production are widely distributed throughout the State, and may be divided into five main districts: (1) Alachua and Marion Counties in the north, with McIntosh, Evinston, and Micanopy among the heaviest shipping points. The cars used in this district are usually iced at Gainesville, which thus becomes a shipping center for the section, although little cabbage is raised there; (2) Sumter County, with Coleman as a distributing center, raises an average of from 600 to 800 acres; (3) Leesburg in Lake County is the center of a district planting 400 to 600 acres, and Seminole adjoining Lake County ships heavily from Sanford; (4) Polk County, with Bartow and Fort Meade as main shipping points, has an acreage

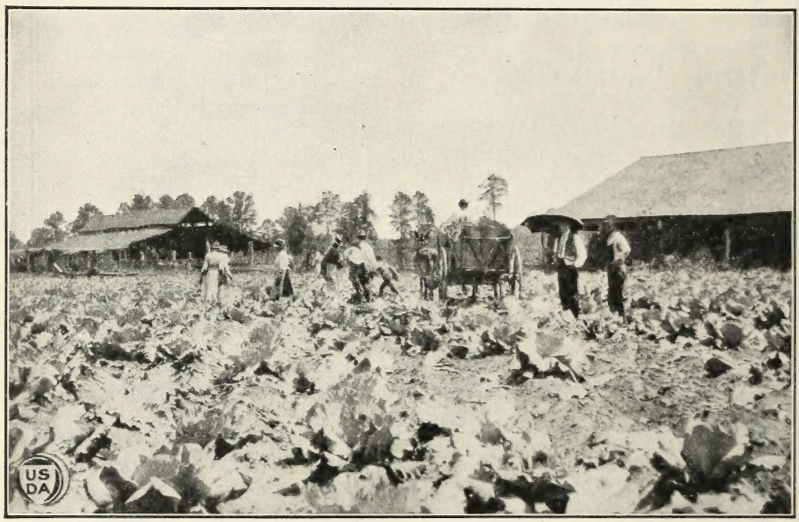

FIG. 4.—Harvesting scene in the early-crop shipping region. Ready to haul to the packing shed.

of 600 to 700; (5) Manatee County, on the west coast, had an acreage of 1,000 to 1,500 in 1917, most of which was grown by overhead irrigation, but reported only 100 in 1923 and 250 in 1924.

In Florida, acreage and shipments of cabbage vary greatly. Acreage fluctuates partly according to the success or failure of the previous season and partly in response to the shortage or abundance of the northern crop. The yield runs about 6 tons, or half a carload per acre. Shipments have ranged from 1,500 to 5,000 carloads per season.

Much of the earliest crop finds a market in southern cities, but most of it goes to large markets from Pittsburgh eastward, the markets of New York and Philadelphia leading. Some Florida cabbage appears in the midwestern markets, the quantity depending somewhat upon the seasonal competition with Texas and California. Shipments become active during January, increase in February, reach their height in March, then taper off during April.

TEXAS.

The early cabbage supply from Texas varies greatly, but ranks next to Florida in average volume. The producing area is practically limited to a stretch of irrigated land about 25 miles wide along the Rio Grande River, extending upstream from the mouth of the river for a distance of 75 miles. In 1922 about 14,000 acres were grown, but usually the area has been much less. The varieties are mainly the small, loose-headed kinds of the early domestic flat type. The average yield per acre is about 5 tons. While very heavy yields are sometimes obtained, the usual tonnage is comparatively light. The distribution as shown in Figure 21, page 30, indicates heavy shipments to south-central markets.

MISSISSIPPI.

The cabbage section of Mississippi is confined to Copiah County. It centers in half a dozen large shipping stations around Crystal Springs, from which about half of the crop is shipped. The main variety is the Wakefield. A considerable part of the cabbage goes out in mixed car lots, which include tomatoes, beans, carrots, and beets. The output goes chiefly to mid-western markets.

CALIFORNIA.

The largest early-cabbage region on the Pacific coast is in Los Angeles and Orange Counties, southern California. Farther north is the Colma district, and small areas are found in the Sacramento and San Jose Valleys. Cabbage is produced throughout the year in California, but the heaviest shipments are from February to May, inclusive. Winnigstadt and Cannonball are leading varieties. Shipments in the 1923 season were only 602 cars, of which 425 were from the southern district. The decrease from 892 cars shipped in 1920 may be explained by competition with Texas, low prices, and high freight charges. A considerable portion of the cabbage grown in the State moves to Los Angeles and San Francisco by motor truck and is not shown in reports of car lot shipments. Part of the crop is used in making up mixed cars of cabbage, lettuce, cauliflower, and celery. The market for spring cabbage is mostly in the Rocky Mountain and Pacific States.

VIRGINIA.

Early cabbage is shipped heavily from three leading districts of Virginia. About 1,150 cars were shipped in 1923 by boat and rail from the counties of Norfolk, Nansemond, and Princess Anne. About 650 cars are usually shipped from the Virginia Eastern Shore district, chiefly from Northampton County. Another section shipping several hundred cars late in summer is in Smyth, Washington, and Wythe Counties. Wakefield is the principal variety grown in Virginia. The market is chiefly in the large cities of the Northeastern States. Methods of sale of the Virginia sections are largely cooperative and are included in a later account of the cooperative marketing of early cabbage.

SOUTH CAROLINA.

The principal cabbage section of South Carolina adjoins Charleston and Meggett. There is also a smaller area around Beaufort. The

mild coast climate favors production of second-crop winter cabbage which competes with Florida cabbage early in the season, but the bulk of the average production of about 2,000 cars is from the Meggett-Charleston section in late spring and early summer. Most of the shipments are handled by two cooperative associations.

MAIN CROP SECTIONS.

WESTERN AND CENTRAL NEW YORK.

The largest cabbage shipping section, early or late, is that of western and central New York. The State supplies nearly one-fourth of the total car-lot movement of cabbage, over half of the main-crop shipments from principal main-crop States, and more than half of the late shipments from storage. (Fig. 5.)

FIG. 5.—Hauling direct from the fields in the late-shipping region.

Domestic cabbage is produced extensively for the fall and winter market and for kraut. The heaviest shipping points are in Ontario County around Geneva, Hall, Phelps, Aloquin, and Seneca Castle. Seneca Castle is the heaviest loading station in the State as well as an important kraut-making center. In Onondaga County, around Marcellus and Tully, and along the Falls branch of the New York Central Railroad are found the other heaviest shipping sections. Among the leading varieties are the Enkhuizen, Copenhagen, and the Flat Dutch. Red cabbage is produced in a limited way in the domestic cabbage section and in Chenango and Madison Counties. Considerable Savoy cabbage is grown on Long Island, which is, however, mainly a producer of early and intermediate cabbage usually classed as home grown.

Cabbage of the Danish type, which supplies the winter market from storage, is more important commercially than the domestic product. It is grown chiefly in Cortland, Onondaga, Cayuga, Chenango, and Madison Counties, with important stations at Cortland and Sherburne. Production of Danish cabbage is less centralized, but is important in Seneca, Wayne, and Ontario, and west of Rochester in Monroe, Orleans, and Niagara Counties.

WISCONSIN.

Cabbage is grown in Wisconsin for market chiefly in 10 counties in the southern half of the State. About half of the acreage is in the two counties of Racine and Outagamie, representing, respectively, the southern and northern cabbage sections. The other leading counties are Kenosha, Fond du Lac, Pierce, and Milwaukee. About two-thirds of the planting is of Danish type cabbage; and the rest, including a large acreage of kraut cabbage, is the domestic. The market for Wisconsin cabbage is chiefly in Chicago, St. Louis, and Kansas City. About one-third of the Chicago cabbage supply is from Wisconsin. The State ranks next to New York as a source of main crop and storage supplies. Average shipments are about half those of New York and about one-eighth of the total car-lot supply of cabbage.

MICHIGAN.

A fairly important cabbage section of the Great Lakes region, interesting because of its concentration in area and its scope of production and manufacture, is in Michigan. The annual shipments range around 500 carloads. The commercial acreage reported in 1922 was 3,025. Over one-third of the commercial production was in Saginaw County. Important shipping points and centers of kraut manufacture are Saginaw, Mason, Charlotte, Eaton Rapids, Jackson, Jonesville, Coldwater, Quincy, and Baroda. Among the leading commercial varieties are Allhead, Copenhagen, Kraut King, and Holland. Fall shipments begin early in August from the section around Baroda in Berrien County and continue from later sections until November, after which the movement is from storage. Among the principal markets for Michigan cabbage are Detroit, Cincinnati, Indianapolis, Chicago, and New Orleans.

COLORADO.

While Colorado is often classed as a main-crop cabbage section, much of the commercial production is shipped during late summer and early fall and tends to fill the gap between the early and late supply in southern and western markets. From 1,700 to 2,500 cars are marketed during the average shipping season from the middle of July to the end of December. The car-lot output has been irregular in quantity and season, and dependent on whether the prevailing price warrants shipment, as well as on production.

The three principal Colorado shipping areas are the irrigated district around Denver, with three heavy shipping stations, the Brighton district including Fort Lupton, and the extensive Greeley district, with about 30 stations, of which the largest are Greeley, Ault, Eaton, and Lucerne. Leading early varieties grown are the Copenhagen and Enkhuizen in the Denver district, with some Wakefield and Winnigstadt. One of the leading main-crop varieties is the Short Stem Hollander. The Denver district ships in 100-pound crates, sometimes in bulk and largely in mixed car lots with other vegetables packed or loaded by dealers at the loading station in refrigerator cars. According to the records of the Federal inspection service during 1921 to 1923, about 95 per cent of the cabbage shipped has been graded U. S. No. 1.

81062°—24†——2

WASHINGTON.

The Puget Sound and Walla Walla districts in Washington together ship around 100 cars per season. Most of the crop is sold in the local markets of Washington and Oregon. In the Walla Walla district and also in parts of Spokane County and of the Puget Sound district both early and late varieties are grown for the neighboring markets. Around Walla Walla the early pointed and flat kinds are started very early or wintered over and are harvested in June and July. These are sometimes shipped as far east as Minnesota and to cities of northwest Canada. Late cabbage is shipped from the Puget Sound district during the fall months, chiefly to near-by markets. While the Washington cabbage territory is not very prominent in volume of production, it is representative of a region where conditions vary considerably as compared with the East.

GROWING AND HARVESTING.

Well prepared soil is essential to the growing of a heavy crop of cabbage. The plant is a gross feeder and must be supplied with humus and plant food from green crops, manure, commercial fertilizer, or combinations of these. Heavy fertilization is necessary throughout southern regions with light soils. Growers in the Rio Grande Valley and in the newer sections of the Northwest do not employ commercial fertilizers so generally as is the practice in many other sections. Most of the early crop grown in the South is set in the field in autumn. The early crop of the North is set in the spring, and the late or main crop is transplanted to the field in early summer, sometimes following another vegetable crop, such as early potatoes. Hand planting is widely practiced, but setting by machine with watering attachment is a common method. Irrigation is practiced in many sections, especially in parts of Texas, California, and Colorado. Cultivation must be shallow but thorough. The control of insects by the use of dust or sprays is necessary to obtain a high-class marketable product. Yields of from 5 to 7 tons per acre are usually secured under favorable conditions in the South, or about 100 barrel-capacity crates, a yield equivalent to a half carload. The late northern crop normally gives a yield of 8 tons or more.

The cabbage crop is harvested with various kinds of cutting tools, including large knives, spuds or cutting forks, spades, and hatchets. Expert workmen leave a stem about one-quarter of an inch long. They cut and trim the head and remove the loose outer leaves, all at one operation.

Early cabbage is often harvested at intervals, as fast as the heads reach maturity. The heads are thrown into farm wagons, which are drawn through the field just ahead of the cutters. The main crop is not harvested until the whole field is sufficiently mature, although the time depends somewhat on convenience and general market conditions. The heads from several rows, usually four, may be thrown together and the wagon driven between two of the windrows of trimmed heads, so that eight rows of cabbage are taken out together.

HOW THE EARLY CROP IS FINANCED.

The greater part of the early cabbage crop in the South is grown on credit of some kind. Loans are made by local dealers or by local

representatives of city dealers and the coming crop is pledged as security. Additional credit is often supplied by fertilizer companies, who accept the grower's indorsed note, which falls due soon after the crop is harvested. More or less capital is loaned by the banks on notes of responsible growers. Cooperative associations sometimes finance their members in the purchase of supplies at planting and harvesting time.

Loans made by dealers are issued to secure control of the crop. The dealers themselves obtain the money they lend from local banks or from their principals in some distant market center. These principals often borrow heavily from the city banks.

Contracts for early cabbage usually include some advance to the grower on a per-acre basis, or the grower is furnished with necessary supplies—seed, fertilizer, crates, or cash. Various sales agreements are in vogue. Sometimes the early-cabbage grower contracts to deliver at a fixed price; sometimes a minimum or base price is stipulated with a division of returns above the base price; sometimes there is only an agreement to deliver to the contractor at market price less certain commissions for handling.

In many areas there is a tendency to do away with the contract sale. It is principally used in new areas to encourage production or in those with a high percentage of tenancy. The practice often leads to overextension of credit and overplanting, because of the desire to sell supplies and to handle the crop.

The prevailing system of financing growers in early-cabbage regions is illustrated by the practice in Florida. The aid furnished by financing agencies in this State ranges as high as 90 per cent of the money needed for growing, harvesting, and packing the crop in the purely trucking districts, and down to less than 25 per cent where trucking is secondary to citrus growing. For the State as a whole, growers are able to supply about 35 per cent from their own resources. Of the balance of 65 per cent the financial aid of fertilizer companies selling to growers on credit represents 30 per cent; while about 20 per cent is furnished by local banks, and 15 per cent is money placed in the producing districts by city commission dealers.

The usual practice of fertilizer companies is to take a three-months' 5 per cent note from the grower. In some cases mortgages on real estate are taken as security, and in rare instances chattel mortgages.

Money borrowed from banks is used primarily to pay labor employed in harvesting and for buying crates and hampers. The usual loan is for three months. The common interest rate is 8 per cent, usually paid in advance; but 10 per cent is charged on contract loans. Crop liens are not taken by the banks.

City commission firms play a relatively small part in financing the production of cabbage, as compared with other Florida truck crops. In only two districts are they represented to any extent. Instead of being made on an acreage basis, their loans to cabbage growers are in amounts corresponding to the individual needs, and are made with a view to securing marketing business rather than to finance production. Such loans are limited to 25 per cent of the expected market value of the crop. From 6 to 8 per cent interest is charged. Ordinarily no written agreement is made, but it is understood that the grower is to consign all his crop to the firm making the loan. In some cases a local dealer or city firm contracts for a

grower's crop at a fixed price per crate, making a partial payment in advance to finance the harvesting and packing.

About 10 per cent of the Florida cabbage acreage is grown on shares. The prevailing arrangement is that of "half-cropping," by which the land owner furnishes land and at least half the seed, fertilizer, and crates. Usually the land owner furnishes all the necessary capital, charging the cropper for his share of the expense when returns are made.

Several small cooperative associations engage in the marketing of Florida cabbage. They do not finance field production, but by providing crate material on credit they aid in financing the packing of the product.

The northern cabbage grower has no peculiar problem of financing. Northern cabbage is usually one of several farm crops. Most growers are farm owners, many of them with farms free of mortgages, while the others are renters who either work the farms for a half or third

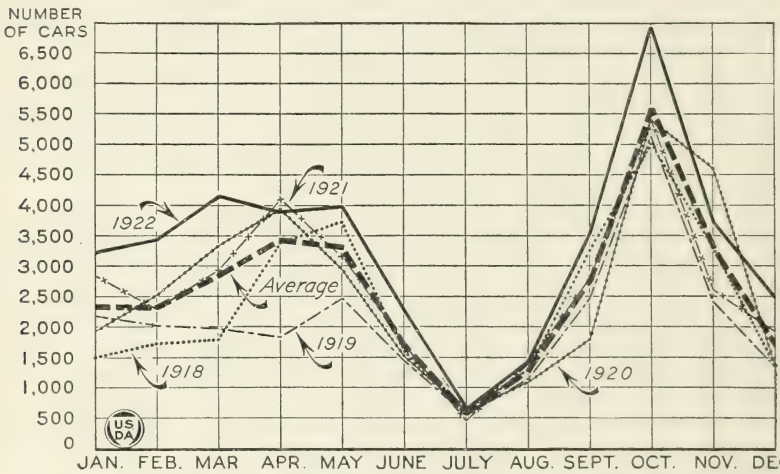

FIG. 6.—Monthly shipments of cabbage for 1918, 1919, 1920, 1921, and 1922, with 5-year average.

share or pay a stipulated cash rental. Growers needing money for operating expenses borrow from banks and private individuals or run accounts with local merchants and sometimes with shippers who are also merchants for certain farm supplies, such as feed, seed, fertilizers, spray materials, and farm machinery. Shippers never advance money to the growers for growing or harvesting operations, and they may or may not pay cash to the growers when the cabbage is delivered. Often a settlement is deferred until the handling is completed.

SHIPPING SEASONS.

The charts of the shipping seasons (figs. 6, 7, and 8) indicate that Florida and Texas have the markets for new cabbage much to themselves in early winter and spring. By April the new cabbage movement becomes very active. Supplies from Alabama, Mississippi, Louisiana, and South Carolina compete with late receipts from Texas and Florida. The shipments from South Carolina, Virginia,

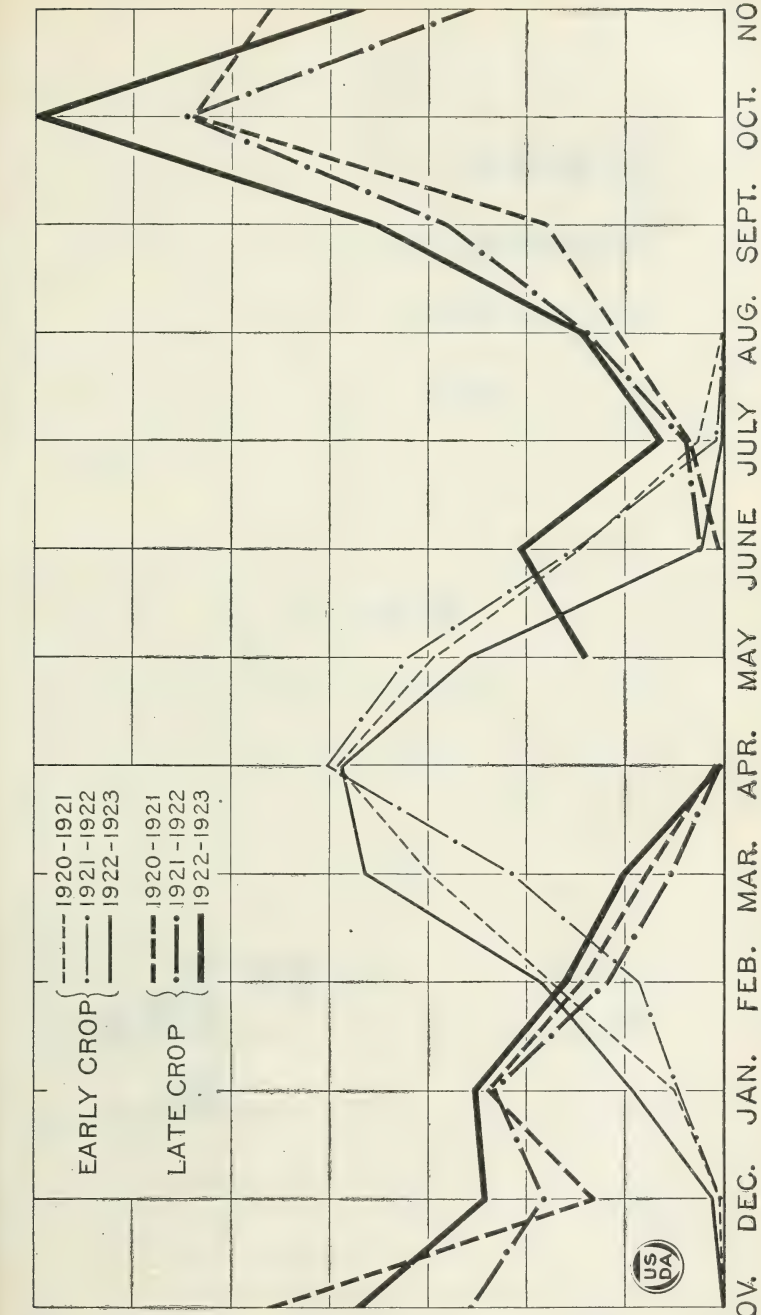

FIG. 7.—Monthly shipments of cabbage, early and late crops 1920–21, 1921–22, and 1922–23 seasons.

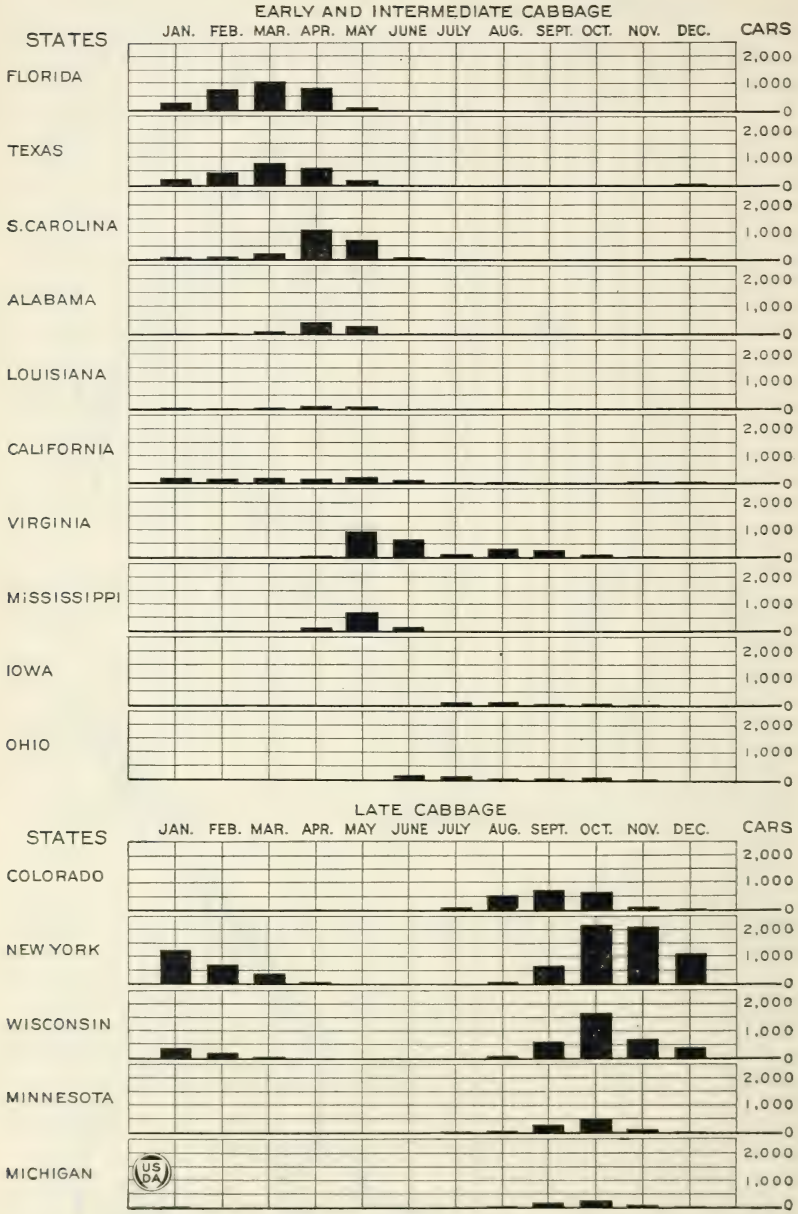

FIG. 8.—Shipping seasons of cabbage by regions and carloads.

and intermediate crop States follow in order. The main crop occupies the market in the fall and more or less throughout the winter.

The early crop begins to move about December and reaches its peak movement with the spring crop in April or May. (See also Table 10.) Sometimes 4,000 cars are shipped during the month or four weeks of heaviest movement. Then the late crop (including the intermediate) gets well under way in August, attains its greatest volume in October with 5,000 to 6,000 cars, and continues in diminishing quantities until the following April. It is evident that the late and early crops overlap during the winter months. In fact, late-crop cabbage, second-crop cabbage, and early cabbage are found on the market simultaneously during the first months of the year.

South Carolina, Louisiana, Texas, and California produce two crops of cabbage—one maturing in the winter, called the second crop and one maturing in the spring, called the early crop. In South Carolina, during March, these crops grow side by side and are marketed together. The second crop is a Holland or Flat Dutch variety that competes with the storage varieties of the Northern States.

COUNTRY SELLING METHODS.

By far the greater part of the crop in the leading commercial cabbage sections is sold to local buyers of one class or another at about the time of harvest. Diverse conditions in marketing are caused partly by differences in business practices and partly by the more perishable nature of the early crop. The system of crop loans and advance contracts in the southern cabbage sections practically forces the majority of growers to sell at once to local dealers.

The general line of movement of the southeastern crop is from field to packing shed, to local dealer's car, to wholesale receiver, to jobber, to retailer, to consumer. Texas and southern California cabbage is sold on the ton basis, in bulk, delivered to the dealers for loading or crating.

The late commercial crop is generally sold to resident shippers or agents of city wholesale houses who buy from the growers by the wagonload. The grower hauls the produce to the car or to the storage house, which is often at a loading station. There are also a few growers' associations which load their own cars and have their own selling agents. The ton is the prevailing unit of sale for transactions between the grower and the shipper. The dealers may buy growers' offerings by the car for cash delivered at the going car-lot price, and the car when shipped may comprise a single grower's haulings or that of several growers, as is more often the case.

The typical lot of cabbage not intended for local kraut manufacture may go in bulk directly to the local dealer's car at the loading and shipping station; or, if storage stock it may be held in farm or local storage for weeks or months before shipment to the city dealer.

SALES BY LOCAL DEALERS.

The local buyers sell or ship the cabbage to city wholesale dealers. They sell mostly on "wire orders"—that is, orders which city dealers have placed with them by telegraph in response to offers previously wired by the shippers.

These sales are usually made f. o. b. shipping points on usual terms, which means that the cabbage is sold as loaded in the cars but subject to inspection at destination. The shipper attaches a draft to the bill of lading, forwards both to a bank at destination or deposits them in his local bank for forwarding. The draft must be paid on acceptance of the car at destination, but rejections are possible and frequently occur when arrivals are heavy or the quality is poor. Large growers and growers' shipping associations may load their own cars and sell direct to city dealers.

At most large shipping points are traveling buyers who do not, as a rule, buy wagonloads from growers but purchase carloads from resident dealers who are equipped for weighing the loads, putting up in crates, if required, and loading the cars. The percentage of the crop sold in this way varies with the section and the market. On a rising market opportunities to sell for cash are numerous. On a declining market there are seldom many cash bids. A number of cars are handled on joint account. In this case some receiver in a market center helps the local buyer and shipper to finance his purchases from growers, and the profits and losses are divided equally.

CONSIGNMENTS.

Some cabbage is consigned to city commission firms, especially when the markets are glutted and it is difficult to sell on wire orders or to cash buyers. This method is also used when the market is rising and indications are that consignment will bring better returns than f. o. b. selling. In either case the shipper takes all the risks and pays all the charges. Commission charges are 10 to 15 per cent of the sale price. Some buyers and a good many growers consign more or less cabbage, with variable success.

The grower or shipper who considers shipping car lots on commission should study the situation with care, noting the crop conditions, the volume of shipments from competing sections, the carlot arrivals at the various consuming markets, and price tendency. From these he may forecast the probable state of the market by the time the shipment is offered for sale. Often a glutted market may be avoided by shipping to other cities or by waiting a few days until shipments are reported as decreasing.

In some instances the resident dealers will not buy for cash and refuse to handle cabbage except as selling agents on the basis of a certain flat charge per ton, per car, or on a commission.

COOPERATIVE SELLING.

Cabbage is handled by cooperative associations in practically all producing States. The potato exchanges of New York and Michigan market cabbage, as do also vegetable associations in Colorado, Iowa, Wisconsin, Oregon, Mississippi, Alabama, Georgia, South Carloina, and Virginia. In the Rio Grande Valley a number of associations, the greater part of whose shipments consisted of cabbage, were organized during 1919 and 1920. On account of the distance to market and unfavorable marketing conditions, the Texas associations have had unusual difficulties and a number of them have gone out of business.

Cabbage is rarely sold by cooperative associations that handle this product exclusively, and no definite figures can be given as to

the quantity sold cooperatively. In Florida there is one local association handling cabbage only, and another marketing cabbage and cucumbers, and two or three that handle cabbage in connection with other vegetables. Potatoes are often handled by associations selling cabbage, as are also onions, cucumbers, lettuce, cauliflower, and similar vegetables.

Cooperative organizations that market cabbage range from the small, unincorporated local associations, with no established market connections, to the large federation, such as exists in Michigan, selling through brokers direct to jobbers.

A typical vegetable marketing association is the local organization of producers under the direction of a manager, who in many instances also acts as sales manager. An association of this type is usually incorporated with capital stock. The greater part of the stock is held by producers in amounts approximately proportioned to the shipments made by each through the organization. There are exceptional cases where a large part of the stock of the association is held by nonproducers. A few important organizations fall in this class. Generally each member has only one vote. Dividends on stock are usually paid if the earnings justify payment. In some instances these are higher than the legal rate of interest and thus not in accord with the best cooperative practice.

Loading, selling, and other services are usually performed for members at cost, except that a specified sum may be set aside each year as a reserve. It is customary to deduct a fixed charge per car or per crate, or a certain percentage of the returns, sufficient to exceed the expenses of the association. At the end of the season the surplus, after provision for reserves and dividends, if such are authorized, is returned to the members in proportion to the value of the shipments made by each, through the association. This practice is a fundamental of cooperative selling.

MARKETING METHODS.

Pooling of shipments by cabbage marketing associations is not a general practice. Returns are usually made to each grower, especially where cars are consigned, on the basis of the price received for his actual shipments. A two-weeks' pool reported by a Colorado association is exceptional. Pools are sometimes made of each day's shipments; or, more often, the lots of cabbage in each car are pooled.

The small local organizations usually sell their cabbage to local buyers, or if the local price is unsatisfactory they consign their shipments to commission merchants.

More experienced and strongly organized associations sell outright to car-lot buyers in terminal markets or make such sales through brokers. Their market connections and areas of distribution are frequently limited. They pursue the policy of selling for cash at shipping points whenever this method seems advantageous. Other associations engage the services of car-lot distributing firms with branch offices or wide brokerage connections in the markets. Such firms, as a rule, are better sales agents than are the associations. Recently, a national cooperative sales agency has been organized, which offers its services to cooperative fruit and vegetable associations at cost.

81062°—24†——3

A few local associations, or federations of local associations handling a sufficient volume of business to employ experienced sales managers throughout the year, have well-established market connections covering the entire territory where their products are consumed. In some instances these business connections are of long standing; and, although they may have few or no salaried representatives in the markets, they are in a strong position from a marketing standpoint. It is obvious that a small association shipping for a few months or weeks only, can not well maintain such connections; and, furthermore, it can seldom afford to employ a man with the ability and experience necessary to market its products to the best advantage.

PACKING, GRADING, AND SHIPPING.

Trimming consists of removing outer leaves that are loose or damaged and discarding soft, puffy, or "burst" heads and other defective stock. It is usually done in the field. Cabbage for kraut is commonly allowed to become well-matured; it is trimmed a little more closely and handled less carefully than market cabbage.

Most markets desire a cabbage of medium size ranging from 2 to 4 pounds for the early pointed type and 3 to 6 pounds for the late cabbage. Colorado, South Carolina, Texas, and Wisconsin have made the United States grades the official State standards. The specifications for U. S. No. 1 cabbage require that stock be fairly firm, free from soft, withered, puffy, or "burst" heads, and free from seed stems and soft rot, as well as from damage caused by freezing, disease, or insects, and by mechanical or other means. The specifications of the United States grades are subject to change without notice and are therefore not included in detail. Copies of the grades may be obtained upon application to the Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D. C.

Cooperative associations of the southern Atlantic coast section often accept the pack of the individual growers, but employ inspectors, local or traveling, at the principal loading stations. Some cooperative shipping concerns in Florida and elsewhere have equipped one or more central packing houses with machinery and appliances for packing and handling. This centralized method seems to be growing in favor.

BULK AND CRATE SHIPMENTS.

The greater part of the commercial crop is shipped in bulk, especially in the main-crop regions. Shipments sent long distances in warm weather, however, usually carry better if put up in packages. Therefore, in the early-shipping sections, except Texas, bulk shipment is not commonly practiced. Texas cabbage is often put up in crates by the receivers on arrival at city markets. Some Texas stock is shipped in crates ranging from 100 to 150 pounds, and the equivalent of several hundred carloads is shipped in crates in mixed carloads with other vegetables. Colorado stock is sold to some extent in bulk for near-by markets. In southern California the cabbage is usually cut and trimmed in the fields and hauled loose in wagons to the packing houses to be crated, although some of it is packed in the field in crates of 90 or 120 pounds and hauled to the loading shed or car.

PACKAGES.

Cabbage containers have never been standardized, and many different sizes and shapes are used. Many of the crate factories (fig. 9) are located in the cabbage shipping sections.

The capacity of most cabbage crates varies from 6,000 to 11,000 cubic inches, holding from 90 to 175 pounds, depending not only upon the dimensions of the crate, but also on the method of packing and the variety and maturity of the cabbage. The four types included in the following table are the most popular.

FIG. 9.—Making cabbage crates.

Dimensions and capacity of four types of cabbage crates.

Type of crate.	Inside dimensions.	Length of slat.	Capacity.
	Inches.	*Inches.*	*Cubic inches.*
Atlantic Coast	12 by 18 by 33	36	7,128
Mississippi Valley	16 by 16 by 28	30	7,168
Colorado	21 by 22 by 24	24	11,088
California	18 by 18 by 23¾	24½	7,695

The 1½-bushel hamper, shaped like a cone with the point cut off, is a common package in the Southeast, wherever the small pointed cabbage is grown. The shape is adapted to close packing of such cabbage, 45 to 50 pounds to the crate. This crate has the disadvantage of being made of material easily breakable. Freight rates are also higher on packages of this size. The flat cabbage packs best in the larger box or barrel crate holding about 100 pounds. In Mississippi, Alabama, and Louisiana the barrel-capacity crate is used for all varieties. A large crate holding nearly 200 pounds is used in Colorado (fig. 10).

LOADING.

The cabbage is brought to the car at the shipping point either by the grower or by the local packer and shipper. Here the buyer may

FIG. 10.—Standard size crate of Colorado domestic cabbage.

FIG. 11.—Some handlers of early cabbage crate, the stock at trackside.

supplement whatever grading and inspection was done in the field by throwing out soft, undersized, immature or overripe, and damaged heads, or by the rejection of crates poorly graded and packed. (See fig. 11.) Buyers and cooperative associations which have no packing houses post their inspectors at loading points. Associations try to

impress their members with the responsibility of each grower in maintaining the reputation of the association brand. The local shipper or association usually provides platform scales and employs men who are accustomed to loading the various types of cars. (See fig. 12.)

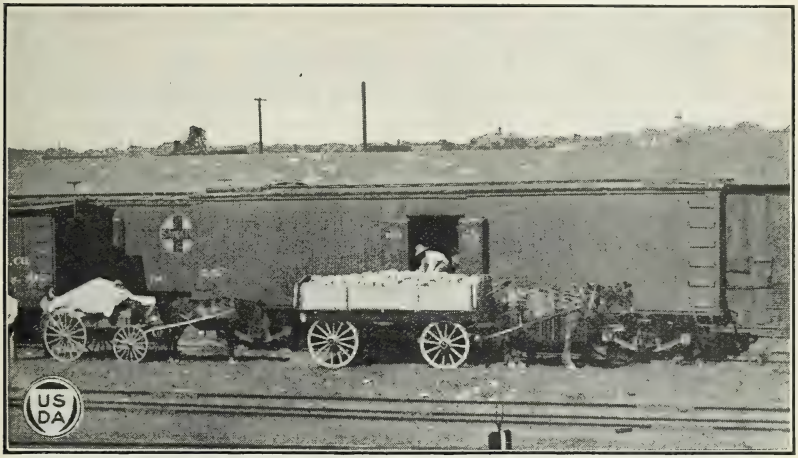

FIG. 12.—Late cabbage is hauled and loaded in bulk.

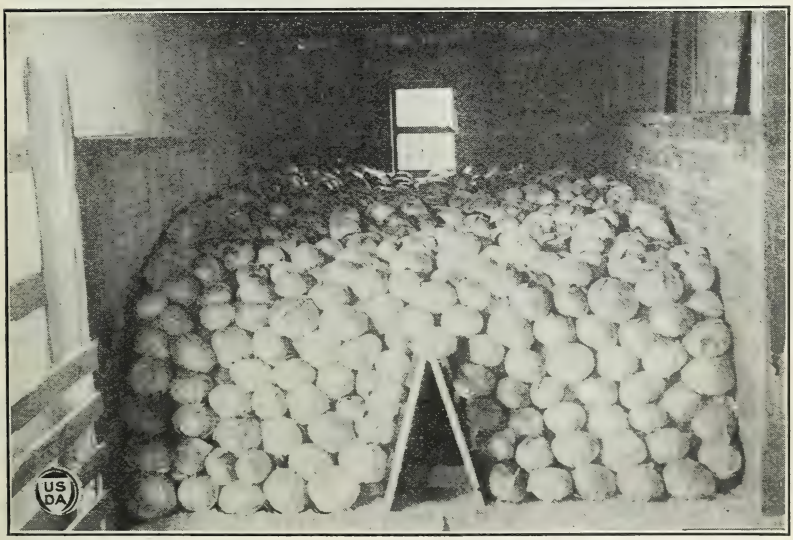

FIG. 13.—Partly loaded car showing ventilation flue and style of pack, in warm or mild weather.

Three types of cars are used—stock cars, box cars, and refrigerator cars. In the early sections for bulk shipments and in the first part of the northern season refrigerator cars are greatly preferred. They can be used in hot weather with ice or ventilation and in cold weather with heating apparatus. A ventilating shaft, box shaped or in the shape of an inverted V, is laid lengthwise along the middle of the car floor, as shown in figure 13. Some shippers use a row of

empty crates as a ventilation flue. There are also ventilators of metal with sides of coarse screen instead of wooden slats, as in the ordinary type. If the common box cars are used in warm weather, slats are nailed against open doorways, thus providing side ventilation, which is assisted by the air box or flue laid lengthwise through the middle of the car. The cabbage is piled, stem down, to a little more than half of the height of the car. Farther north, in cool weather, heavier loading is practiced.

The usual method of loading cars of late cabbage in bulk is to place it by hand and to build the load up by tiers, instead of dumping the cabbage in loose.

The great bulk of main-crop cabbage is shipped during moderate fall weather. Many of the early shipments, especially of domestic

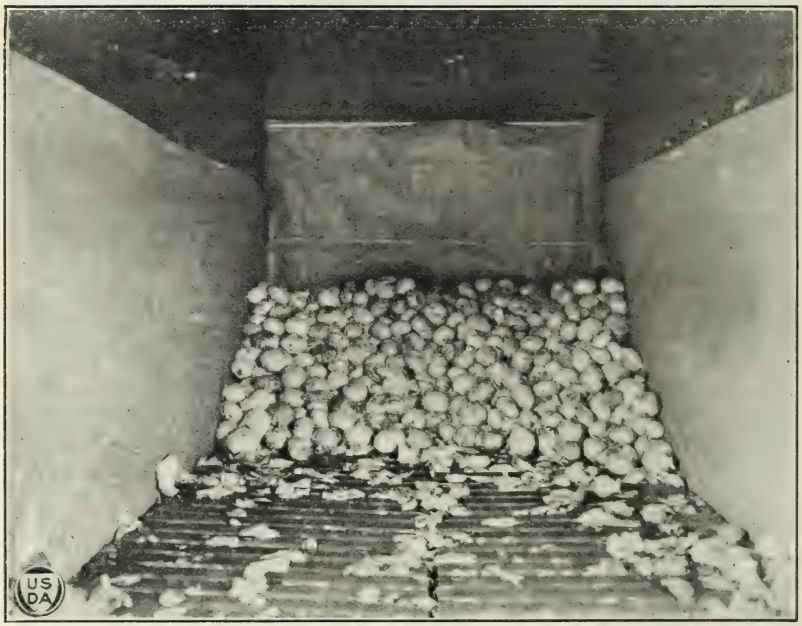

FIG. 14.—Cold-weather shipments may go without ventilation flues, the sides of the car being lined with building paper.

cabbage, are in stock cars; but more cabbage is shipped in ventilated box cars than in any other kind, largely because no other cars are available during the season of heavy movement of produce, when car shortage often prevails.

When box cars must be used late in the season and there is danger of freezing in transit, the car is lined with paper (fig. 14) and the load is covered with a layer of straw; but the refrigerator car with its protected side walls is the standard after freezing weather sets in.

TRANSPORTATION PROBLEMS.

Cabbage is bulky and often requires too much shipping space in proportion to its value. To reach northern markets, long shipment is necessary for the southern crop. Moreover, the very early crop is harvested before complete maturity and hence it is soft and perishable.

From these causes several transportation problems arise, the most important of which are loading and service. Cars must be so loaded as to permit adequate ventilation, especially of warm-weather shipments. Heavy loading of cars is likely to result in spoilage and waste.

The very earliest cabbage is shipped in crates or hampers in refrigerator cars. Unless kept cold and moist, early southern stock is sure to wilt and deteriorate in market quality. Losses in the shipment of bulk cabbage in warm weather are heavy even when hard heads are loaded. When crated, the loss is much reduced. Crates and crating, however, add to the expense and sometimes the loss in bulk shipments is less than the cost of crating. Late in the season, cabbage may be shipped in bulk in refrigerator cars without special attention. Rapid movement of the early crop is most desirable, and special freight schedules are provided by some roads. The shipper pays the freight, the rates of which have been recently increased.

The shipper must plan ahead for his supply of empty cars and notify the freight agent in ample time. He must cooperate with the local shippers to see that his section gets its due attention. United effort is often desirable to secure improved service in the way of quick transportation, adequate ventilation, and attention at diversion points. Shipments from Florida, Texas, California, or Colorado may be on the road 7 to 15 days, and in such cases the railroad service becomes of prime importance.

Freight charges.—The higher price usually obtained for early cabbage in northern markets is more or less offset by higher cost of transportation. Freight charges average much heavier from the early shipping sections than from the principal shipping points for the main crop, because early crop cabbage is grown principally in sections remote from most of the large markets. Freight charges in 1924 from representative shipping districts in California, Texas, and Florida to the leading markets for those districts were mostly above $1 per 100 pounds by the carload and still higher for shipments to markets outside the usual market territory. Charges for freight on Florida cabbage to principal eastern markets were rather higher than on Texas and California shipments to mid-western cities. Cabbage from the two leading late shipping States, New York and Wisconsin, pays only 27 to 35 and 16 to 31 cents per 100 pounds, respectively, to the principal markets for each of these two sections.

FARM AND COMMERCIAL STORAGE.

The main-crop shipping season is prolonged about four months by storage of the hard-headed long-keeping varieties. Fully half of the main-crop shipments are from either farm or commercial storage.

By growers.—Small crops of late cabbage for home use and local marketing are stored in various convenient places, in shallow pits or furrows or in old hotbeds. The cabbage is placed roots upward, and covered with straw, litter, or earth, to prevent hard freezing. The shallow pit is still used extensively in western New York for temporary storage, as illustrated in Figure 15.

Cool, airy cellars make good storage places for small lots. In these, solid heads slightly trimmed are piled not over 4 feet high. They are often placed on shelves 2 or 3 feet wide, leaving air space between the cabbage and the cellar wall and also between the top of

the cabbage and the shelf above. In general, the shelf method of storage is considered the most desirable. When taken out for sale the heads are trimmed to solid, fresh-looking cabbage, with the outside leaves removed by cutting around the stem.

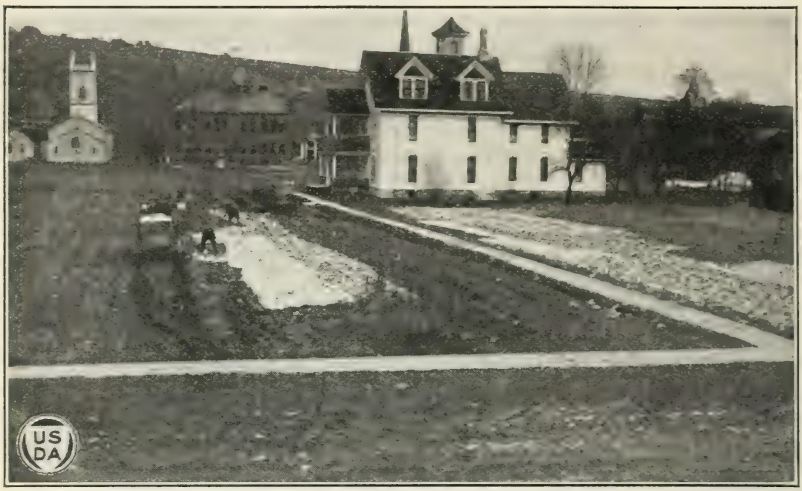

FIG. 15.—Cabbage may be stored for short periods, during mild weather, in shallow pits covered with straw.

By dealers.—Large quantities of Danish-type cabbage are placed in commercial storage houses in the producing areas (fig. 16) or are put into warehouses in the market centers. The storage season begins in November after freezing weather has permanently set in and continues until March.

FIG. 16.—Commercial storage house for cabbage in western New York.

These storage houses are more or less frost-proof in construction and are fitted with ventilators in the roof and along the walls at the ground. A driveway runs through the center of the house with a row of bins along each side. These bins are commonly 3 to 4 feet wide, separated by double-slatted partitions and so constructed as to give about 6

inches of ventilating space between the bins from top to bottom. In some houses the bins are much wider, and the cabbage is stored on slatted racks which fit into the bins, as shown in Figure 17. From one to four layers of heads are placed on each rack and an air space of a few inches is left between the top layer of cabbages and the rack above. These racks aid greatly in ventilation but add to the expense of handling and reduce the storage capacity. However, in most cases the advantages of this method are held to justify the expense. The rack system of storage is also used to some extent by growers. Somewhat fuller details of miscellaneous storage methods and practices will be found in Farmers' Bulletin 433, Cabbage.

Nearly 95 per cent of all commercially stored cabbage (Table 6) comes from New York and Wisconsin, although Pennsylvania, Michigan, Minnesota, and Colorado put a few cars into storage. Only the Danish type can be stored successfully. Since it is unusual to ship from the field after hard freezing weather sets in, it is perhaps reasonable to estimate that shipments from New York and Wiscon-

FIG. 17.—Storage house interior, showing cabbage piled on racks with spaces for air circulation.

sin after November 1 are out of storage of some sort. On this basis about two-thirds of the New York crop and over two-fifths of the Wisconsin crop is stored for short or long periods. Approximately 8,000 cars out of a total of 15,000 have been shipped annually from New York, Wisconsin, Minnesota, Michigan, and Pennsylvania after November 1, during 1918–1923. About 7,500 cars were from New York and Wisconsin.

Distribution from storage.—Cabbage is not quickly perishable on removal from storage in winter. Accordingly a considerable supply is kept on hand by dealers. The only definite information on the quantity carried in this way is based on a special survey made by the Department of Agriculture in 1918, from which it appeared that on January 1, the retailers held 21 per cent, the equivalent of over 600 carloads out of about 3,000 cars reported in commercial storage houses, and held by all classes of dealers, stocks in farm storage not included. This large retail stock tends to make the winter cabbage market less quickly responsive to changes in the wholesale supply.

USE IN KRAUT.

When the crop is large, prices low, and the demand for shipment or storage limited, the extensive kraut-making industry (fig. 18) affords a useful outlet. It acts as a balance wheel, increasing its activity in full-crop years but letting up in years of short crops and high prices.

Most of the commercial kraut is manufactured in the cabbage areas of New York and Wisconsin, although, when prices are low, a considerable share of the car lot domestic cabbage finds its way to kraut factories in midwestern cities and in Philadelphia and Baltimore. City kraut manufacturing helps to account for the comparatively large receipts of cabbage at some of the distributing centers.

During and after the war period kraut production was extremely variable; but in 1923 it was estimated that kraut factories consumed nearly 160,000 tons, compared with 67,000 in 1920, with 64,000

FIG. 18.—Intake for unloading cabbage at kraut factory with space for 10 wagons and teams.

in 1921, and with 164,000 in 1922. About 80 per cent of cabbage used for kraut is grown in New York, Ohio, Wisconsin, and Michigan. Most of the other 20 per cent is raised throughout the North Central States west of the Mississippi. The beginning of kraut making is reported in Colorado, Texas, and Florida, where in some seasons there is much surplus cabbage.

Western New York, the greatest kraut-cabbage section, produced 43,000 to 44,000 tons, approximately 3,500 carloads, in 1923. The chief centers are near Geneva, Ontario County, where 80 to 90 per cent of the domestic cabbage is used for kraut, and in Fulton, Oswego County.

In 1920–21, the 30 kraut factories in Wisconsin used 16,000 tons of cabbage. About one-third was manufactured in two great factories in Racine County. Over 6,000 tons of kraut cabbage were sold in that county in 1920–21. Kraut is made in all the cabbage sections of Michigan except in Berrien County; the largest center is in Saginaw County.

Much of the kraut cabbage is contracted in advance for a stated price, but a part is bought according to market price at harvest time. It sells below the current price of the shipping crop.

When received at the factory, the cabbage is allowed to wilt slightly, and the heads are trimmed of the green outer leaves. It is then cut by machinery into thin shreds, mixed with salt, and dumped into the fermentation tanks, (fig. 19) where the salt extracts the juice and makes a thin brine. Under right conditions fermentation develops, producing lactic acid, softening the cabbage, and giving it a sour taste. In from one to eight weeks the process is completed. It is packed for shipment in sealed cans (fig. 20) and in casks or barrels of from 5 to 45 gallons. Thus packed, the kraut can be kept for an indefinite time in practically the same condition as when it leaves the tank.

FIG. 19.—Section of vat house and curing tanks.

DISTRIBUTION OF THE COMMERCIAL CROP.

About half of the total cabbage crop, as indicated previously, is accounted for by local and home consumption, by kraut making, and by waste or decay. The other half is shipped in car lots to market, either directly or from storage.

As a rule, the carload movement of the early crop is to markets north of the producing section. Late-crop cabbage goes naturally to the nearest large markets. The early and intermediate southeastern crops from Florida north to Virginia are taken chiefly by the cities of the populous Northeast. Texas and adjoining States ship heavily to the markets of the Middle West, but also to Texas, Tennessee, and Oklahoma. The general dividing line of markets between the Texas and southwestern States and the southeast section is the

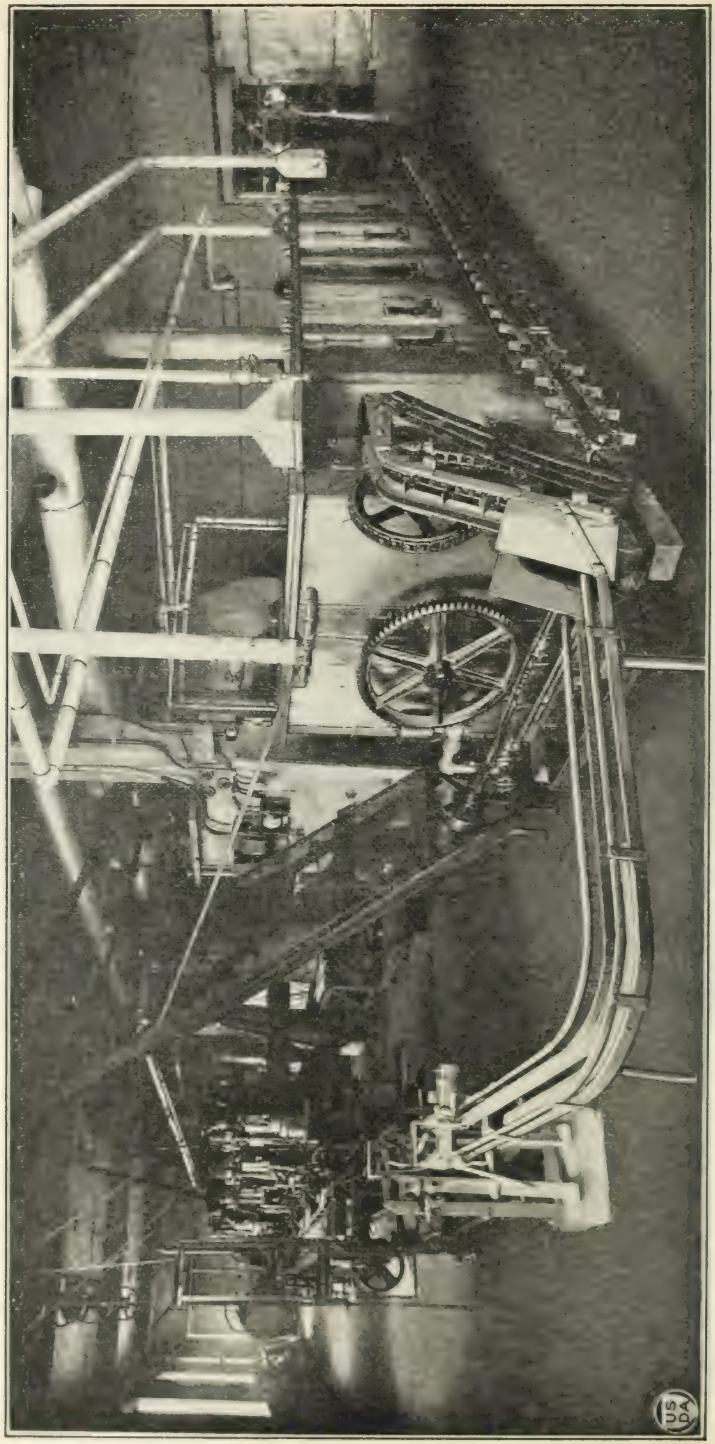

FIG. 20.—Sauerkraut factory canning room.

Mississippi and Ohio Rivers, but some southwestern cabbage goes to the northeast and some New York cabbage to the Central Western States.

Figure 21 shows car-lot distribution of shipments from Texas, a representative early section; and Figure 22, distribution from Colorado, one of the more distant main-crop sections.

Colorado ships about half its car-lot movement to Texas, Kansas, and Oklahoma and the rest to numerous southern and midwestern destinations. Competition comes chiefly from Iowa and the Great Lakes region, which also ship to central and southwestern markets. New York has about half of all the late cabbage available for shipment after November 1 and the product is shipped to points along the seaboard from Maine to Florida, as well as to markets in New York State, Pennsylvania, West Virginia and Ohio. New York, Philadelphia, Baltimore, Pittsburgh, Boston, Cincinnati, and Cleveland rank about in the order given in the quantity received from New York State.

The market distribution is considerably affected by variation in seasons and production, and car lots may be attracted to unusual markets because of high prices. When prices are high, the item of freight to distant points becomes less important. (See Table 12.)

WHERE THE CAR LOTS GO.

Most of the car-lot cabbage is shipped to city markets, although a part is afterward reshipped in larger or smaller lots to the lesser consuming points. About 40 per cent of all car-lot shipments is taken by 13 cities, which, within a distance of 10 miles each, contain about 40 per cent of the urban population of the United States. (Fig. 23.) The 13 cities for which reports are available are New York, Philadelphia, Boston, Pittsburgh, Cincinnati, Cleveland, Detroit, Chicago, St. Louis, Kansas City, Minneapolis, St. Paul, and Omaha. Excluding Boston these cities together take approximately 10,500 cars annually. (Fig. 24.) Roughly, 5,000 cars are of early cabbage and 5,400 cars are of the late crop. In addition, Boston unloaded 600 cars of early and only 250 cars of late cabbage annually in 1920 and 1921. It is significant that the 13 cities take 45 per cent of the early cabbage, but only 34 per cent of the late cabbage shipments, suggesting that these large markets depend less than the smaller ones upon the home-grown supply, which comes mostly during the late crop season.

Naturally, different cities have different cabbage demands. Moreover, these demands vary somewhat from year to year. According to the figures of cars unloaded annually (Table 7) it appears that New York, Boston, Detroit, and Minneapolis unload about twice as many cars of early cabbage as they do of late. Philadelphia, Chicago, and St. Paul, receive about the same number of cars of each class, while Pittsburgh, Cincinnati, St. Louis, Kansas City, and Omaha demand late cabbage and take only one-third to one-half as many cars of early varieties as of the late crop. As a matter of fact, 42 per cent of the average total unloads of early cabbage for the 13 cities is received annually by New York and Boston, whereas their receipts of late cabbage amount to nearly 20 per cent. The cities taking smaller proportions of late cabbage are in late-cabbage grow-

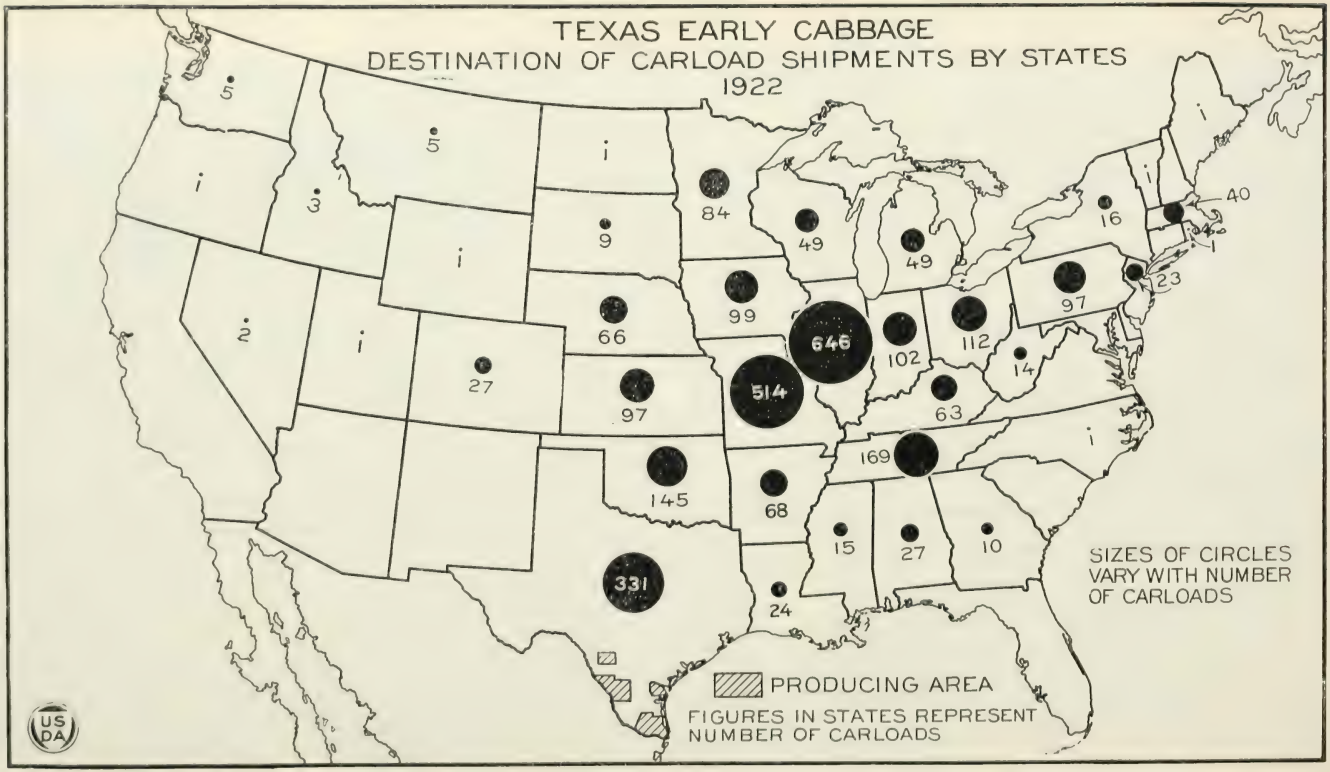

FIG. 21.—Midwestern markets draw heavy on the Texas Output.

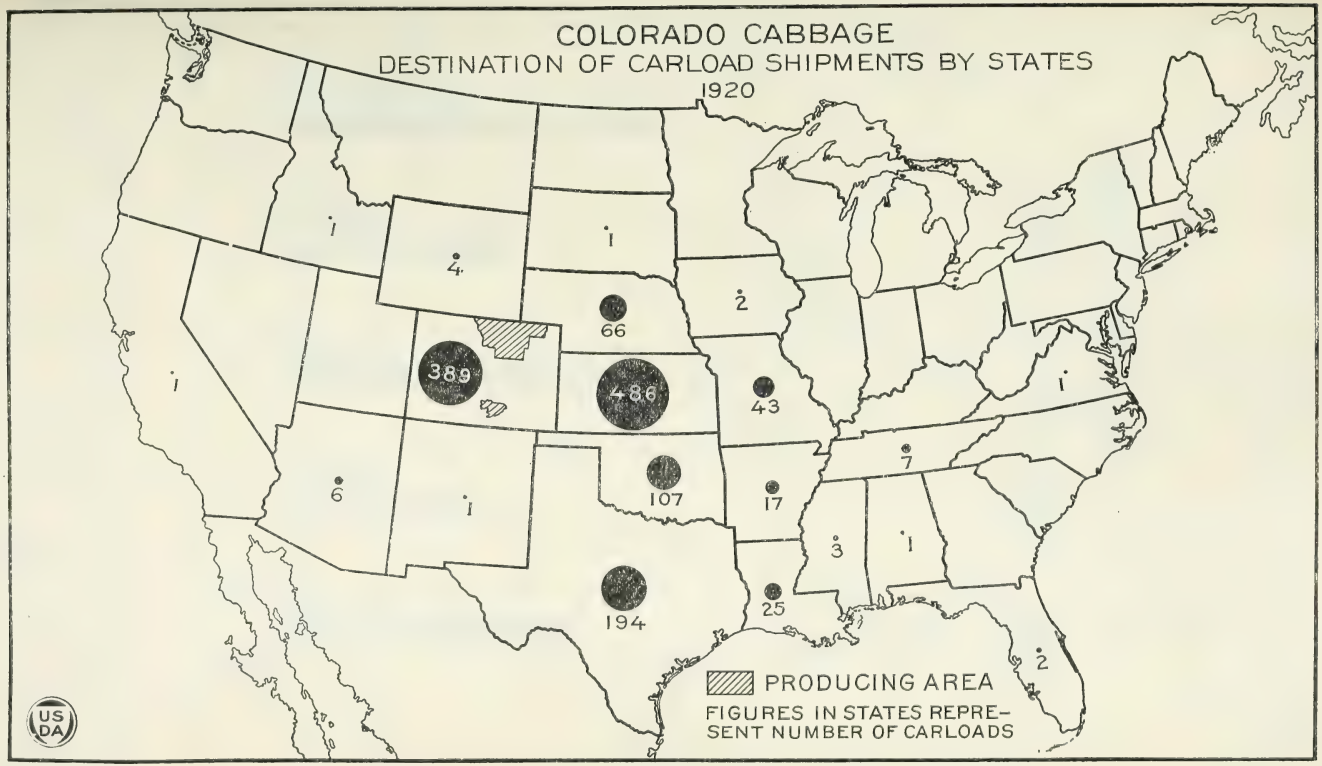

FIG. 22.—Western and Southwestern markets receive most of the shipments from Colorado.

ing territory where local supplies in small lots occupy many of the tributary markets. These surrounding markets depend wholly on the central market for many small-lot supplies of early southern cabbage. The 5 to 20 per cent lighter average car-lot weight of early cabbage also affects the comparison.

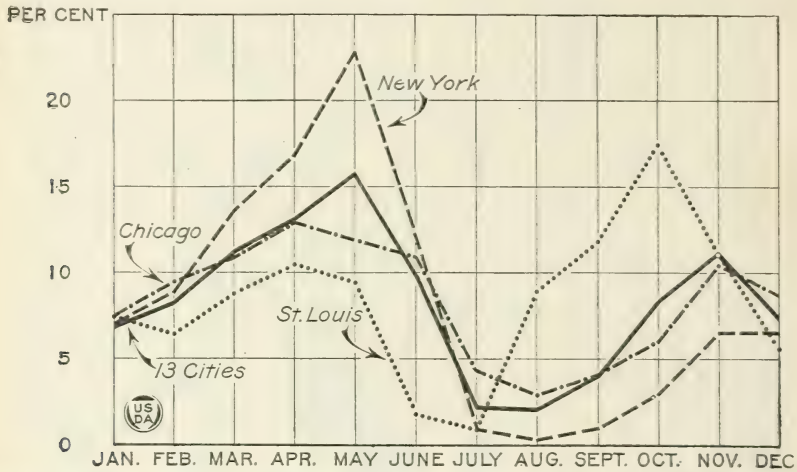

FIG. 23.—Percentage of unloads received monthly at 13 cities, and at New York, Chicago, and St. Louis, respectively.

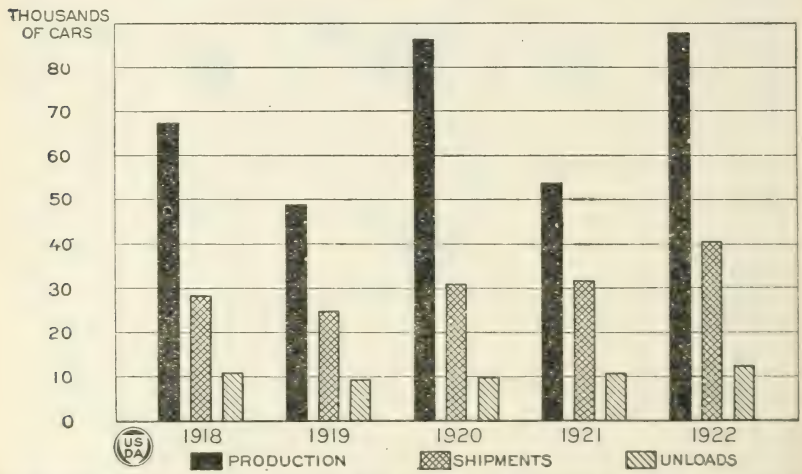

FIG. 24.—Estimated total cabbage production, with annual carlot shipments and the carlot unloads in 12 cities.

Considering the consumption of all cabbage, it appears (Table 8) that Cincinnati, Kansas City, St. Louis, Omaha, Philadelphia, and Pittsburgh have high per capita unloads, whereas Minneapolis, St. Paul, Detroit, and New York show relatively low car-lot receipts. The Cleveland, Chicago, and Boston per capita carload receipts are not far from the average.

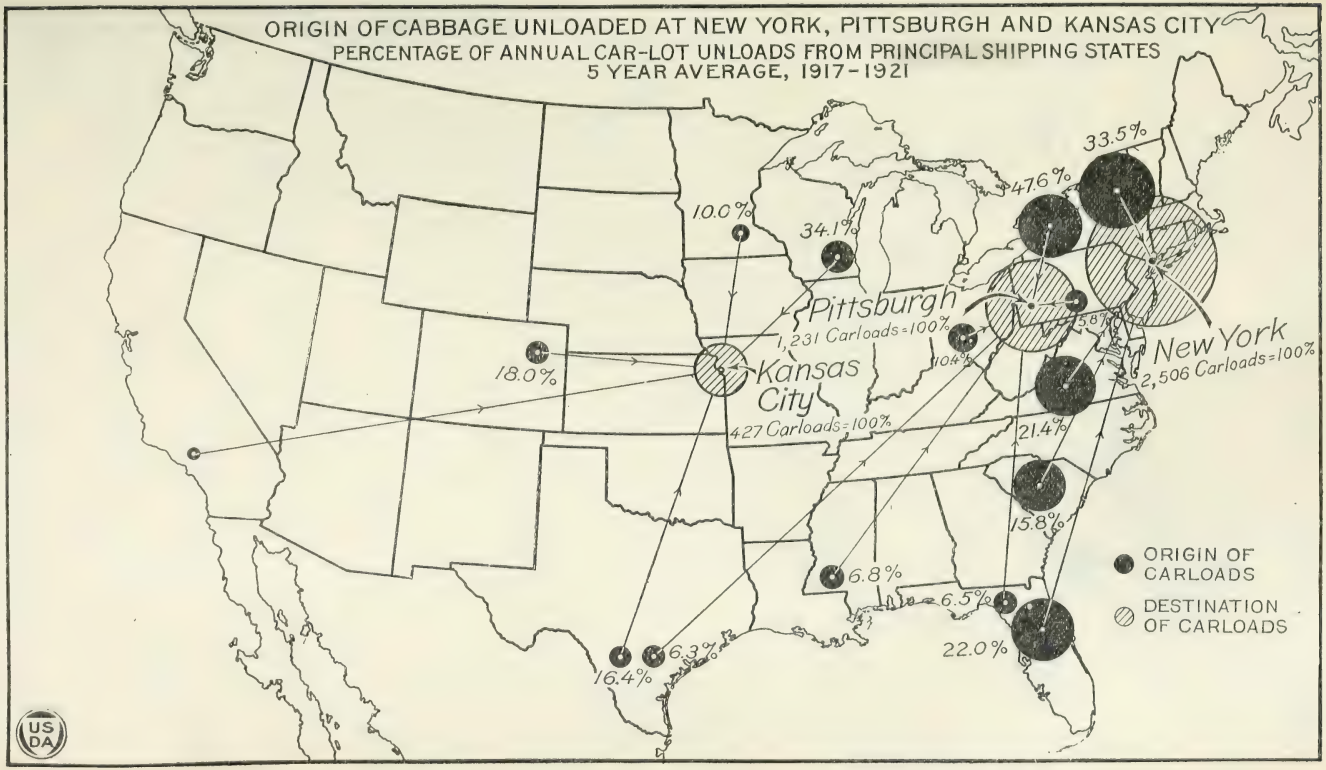

FIG. 25.—Relative importance of leading sources of carlot supply for three representative city market districts.

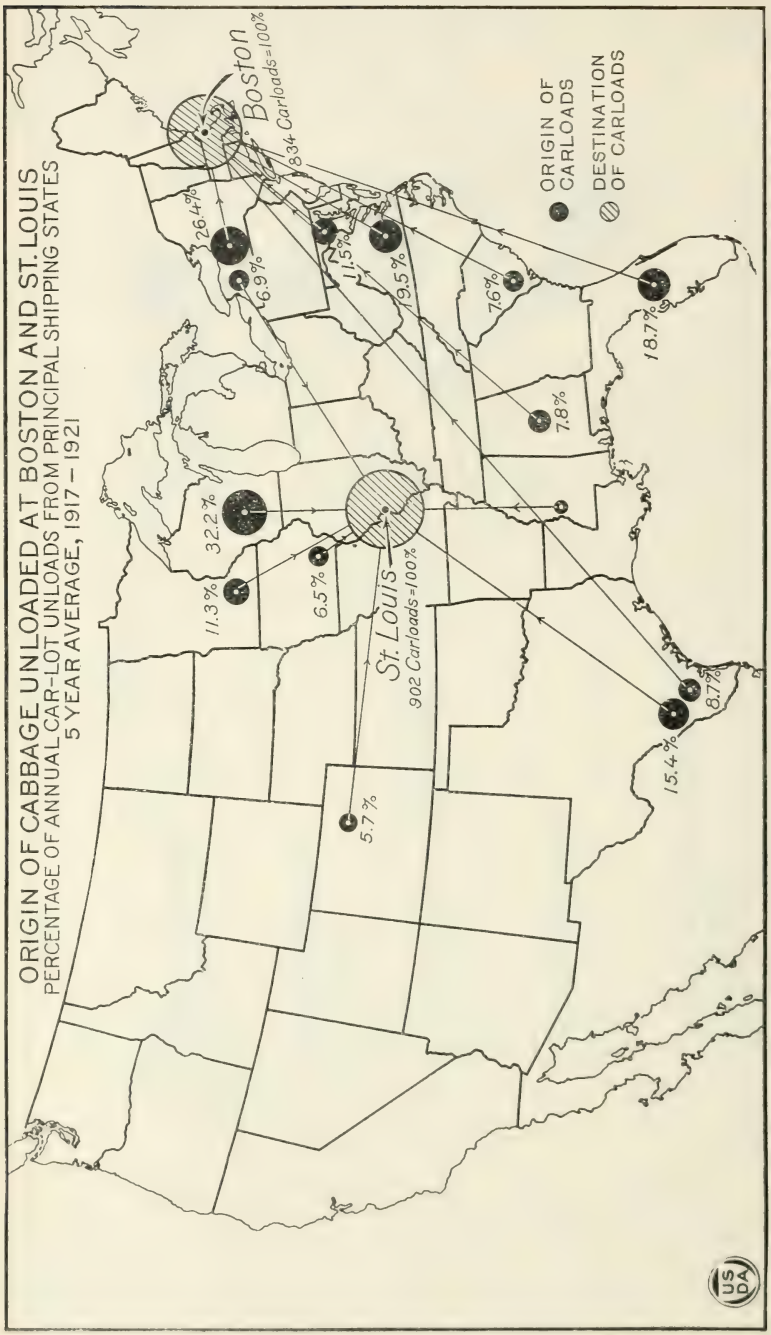

FIG. 26.—Comparison of sources of cabbage supply for an eastern and a midwestern city of about equal size.

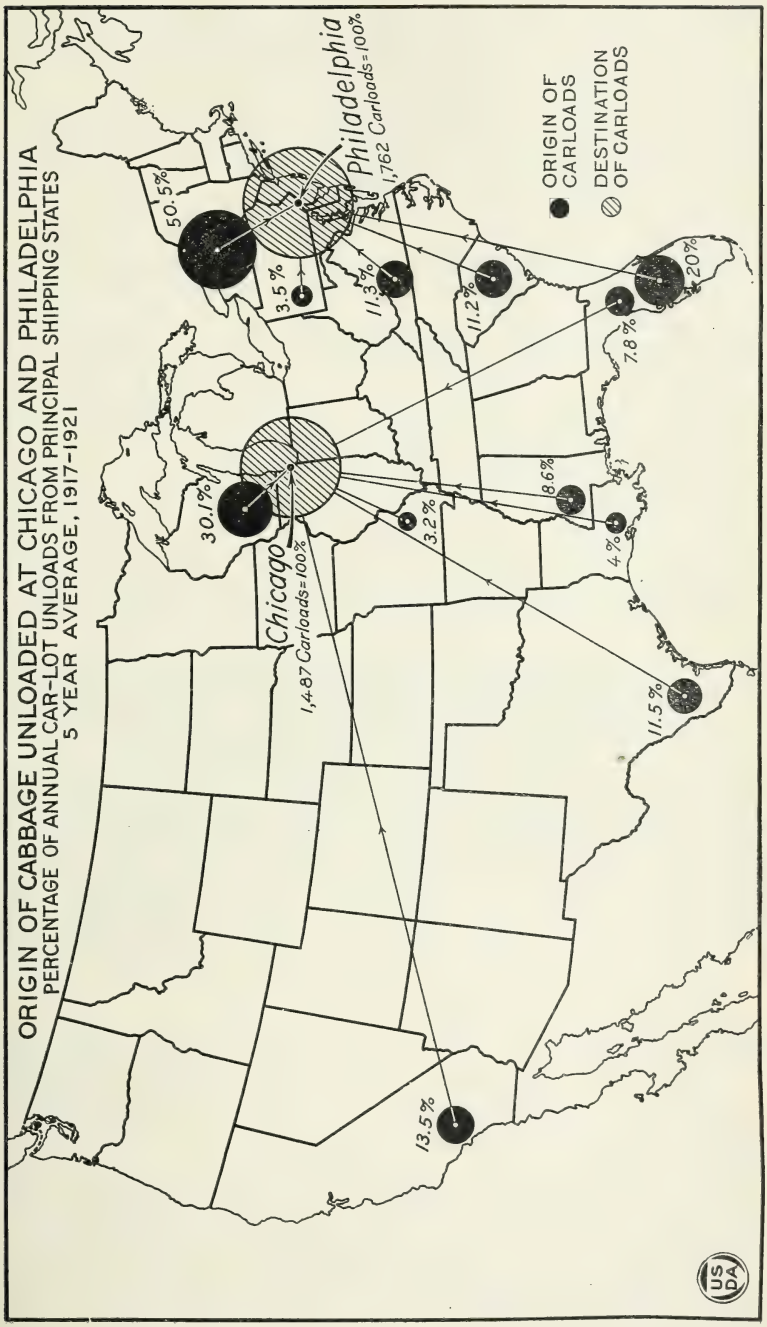

FIG. 27.—Comparison of sources of cabbage supply for two large markets of the East and the Central West.

SOURCES OF CITY SUPPLY.

The accompanying maps (figs. 25, 26, and 27) indicate the approximate regions which supply Boston, New York, Pittsburgh, and Kansas City; Boston and St. Louis; Chicago and Philadelphia with cabbage in carload lots.

New York City receives approximately 93 per cent of its cabbage from four States: More than one-third from New York, about one-fifth each from Florida and Virginia, and one-sixth from South Carolina. New Jersey, Louisiana, and Maryland also contribute small quantities.

Philadelphia is supplied almost wholly (96.5 per cent) by the same States and Pennsylvania. The proportions are different, however; one-half comes from New York State, one-third from Florida and South Carolina together, and 3.5 per cent from Pennsylvania.

Boston depended upon seven States for 90 per cent of its cabbage in 1920 and 1921. In addition to Florida and South Carolina, from which comes 26 per cent of Boston's yearly supply of cabbage, Texas and Alabama contributed nearly one-sixth, although the latter States sent very little to New York City (in 1922 only 5 cars, as compared with 173 cars to Boston). Nearly one-fourth of Boston's receipts were from the State of New York in 1920 and 1921.

Nearly 20 per cent of the annual unloads of cabbage at Pittsburgh is received from Mississippi, Florida, and Texas. A very little early cabbage comes from Alabama. Almost half the unloads come from New York, 10 per cent from Ohio, and about 6 per cent from Pennsylvania.

The Chicago and St. Louis markets are accessible to nearly all the producing areas. Late supplies are principally from Wisconsin, but New York, Illinois, and Colorado ship freely. Texas is the leading shipping section of early cabbage to these markets and is becoming more important. Mississippi and Florida are regular shippers, but Florida is becoming relatively less important. Alabama, Tennessee, and Louisiana each shipped three times as many carloads to Chicago in 1921 and 1922, as did Florida. From 1918 to 1923, California cabbage made up 9 per cent of the total Chicago supply.

Wisconsin (32 per cent), Minnesota (11 per cent), New York (7 per cent), Colorado (6 per cent), and Iowa (6.5 per cent) are the principal sources of the St. Louis supply of late cabbage. Texas (15 per cent) sends most of the early cabbage, but Mississippi, Alabama, and Tennessee were important in 1921 and 1922.

Kansas City received nearly 80 per cent of her carlot cabbage from four States: Wisconsin, 34 per cent; Colorado, 18 per cent; Minnesota, 10 per cent; and Texas, 16 per cent. California is sometimes an important shipper, but Alabama and Mississippi are usually the strongest competitors of Texas.

The apparent annual consumption of cabbage for 12 city market districts, using a five-year average, is 6.5 tons per thousand inhabitants, and including Boston, does not vary much from that figure. (See Table 8.) This is about 13 pounds per person. However, some variation from this estimate will occur in cities consuming a very large proportion of the early or of the late crop due to the difference in weight of carloads throughout the season.

The Pittsburgh market district unloads 13.5 tons per thousand of population, but distributes a large quantity in less than carload lots

to numerous surrounding cities. To a lesser degree this explains the high figures for Kansas City and perhaps for Cincinnati. Philadelphia and St. Louis market districts are great cabbage-consuming centers; the latter unloads 10.8 tons per thousand, or 21 pounds per capita. Kraut factories consume a considerable part of the receipts of domestic cabbage in the five cities mentioned.

On the other hand, Minneapolis, St. Paul, and Detroit doubtless receive very large quantities of home-grown cabbage by wagon, motor truck, or small-lot rail shipments in addition to the car-lot unloads. The figure for New York does not include reshipments, but still seems low and is not easily explained except by saying that the city does not have a great cabbage-consuming population and has comparatively few kraut factories. New York's apparent carload receipts are about 8 pounds per capita; the receipts of home-grown cabbage are light, amounting to less than one-half pound per capita according to the report of the Port of New York, authority on the food supply of the New York port district.

SEASONAL CONSUMPTION.

Owing to improved transportation facilities, cabbage is received at consuming markets every month in the year; but the months of greatest unloads are April and May when the new cabbage is arriving. Figure 23 indicates the four-year combined monthly average percentage of unloads at 13 cities and the average monthly percentages at New York, Chicago, and St. Louis.

The comparatively heavy receipts in April, May, and June at New York, the very light unloads in July and August, the comparatively light receipts at New York from July to December, and the very heavy unloads of late cabbage at St. Louis from August to November are outstanding facts. Making due allowance for the fact that cars of early cabbage are loaded 5 to 20 per cent lighter than cars of late, New York receives more than one-fifth of its annual number of carloads in May, when early cabbage only is on the market. St. Louis obtains nearly one-fifth of its carloads in October, when late cabbage dominates the market. Further details concerning shipments and the supply of cities are included in Tables 7 to 9 and 11 to 15, inclusive, in the appendix.

WHOLESALE MARKETING.

After arrival in the terminal railroad yard in the larger markets, the regular marketing route for cabbage is from car-lot receiver to jobber, then to retailer, and finally to the consumer.

The first-hand receivers of car-lot cabbage sell principally in large lots of 25 to 100 packages, or by the ton in bulk, to general produce-jobbing dealers at a price based on the cost of car lots as received, plus handling and delivery costs and a profit or a commission, which varies according to whether the seller or the buyer supplies barrels, sacks, or crates, and undertakes delivery.

If the receiver acts as a broker, he may either sell the car lot outright to other receivers in the same market, or in other cities, or to any buyer who is able to handle cabbage in car lots. He usually charges about $10 per car for his services.

The jobbers divide the stock purchased from the receiver, selling it in lots of 5 to 10 packages to retail provision stores, grocers, and peddlers.

Small wholesalers.—In many of the large cities there are wholesalers who buy usually from jobbers, sometimes from primary receivers, and sell in lots of one or more packages to retailers, peddlers, and large consumers. They often supply extra service, re-sort and repack the stock if desired, supervise its delivery, and perhaps extend credit to regular customers. They assume whatever cost, shrinkage, or loss may result from these services, and charge more than the usual jobbing prices.

Early and late cabbage.—The city marketing routes of early and late cabbage have points of difference. They often arrive at different railroad or boat terminals and are handled by different sets of receivers, one group making a specialty of southern vegetables and the

FIG. 28.—Barrels of cabbage on retail market. Heads are not solid and sales are slow.

other handling mostly northern crops, like potatoes, cabbage, onions, and turnips. Receivers of early cabbage frequently have agents or branch offices at shipping points. They often act as selling agents for growers' associations.

In the large eastern cities, one or two firms may handle all the local consignments of large shipping associations, like those of South Carolina and Virginia. The jobbers and retailers handling early cabbage are much the same as for late cabbage, although many jobbers of late cabbage handle very little early stock. The conditions in eastern markets are much alike. Between eastern and mid-western markets a striking difference appears. Considerable early cabbage reaches mid-western terminal centers in bulk instead of in crates and is sacked, crated, or barreled by the city dealers in the same manner as the late cabbage. (Fig. 28.)

Late or main-crop cabbage everywhere is shipped mostly in bulk and is handled generally by receivers who specialize in staple vegetables.

In smaller markets, those in cities of medium size, the marketing route is shorter. In such markets the car-lot receiver may be also the jobber and small-lot wholesaler, and perhaps he has a retail department as well. He sells the carload in lots of any size from one package upward. Wholesale prices may be chiefly based on small-lot sales and may range higher than jobbing prices in large markets. Commission sales are mostly in small lots; but some large-lot sales occur and also a few car-lot sales at prices below those of small lots. Returns to the shipper may show different prices for various parts of the same consignment, according to the different sizes of the lots sold.

In small cities there may be no regular car-lot market, except for car lots of mixed staple vegetables from the same shipping points. These lots are parceled out to retailers. Still smaller places are supplied by reshipments of large or small lots from wholesale dealers in the nearest large market center.

Car lots of late cabbage are not usually sent to markets of less than first rank, except on previous arrangement with the receiver. Most dealers in cities of small or medium size prefer to buy outright and sometimes refuse to handle consignments. Early cabbage for such markets is often shipped for sale on consignment, but preferably by arrangement with the receiver, who may arrange to divert the car to other markets if his own market is already oversupplied.

Dependent markets.—Cities and towns outside of the actual distributing center depend more or less regularly on its market facilities. Some of these places may be 200 miles away, but as a rule they are within 100 miles. The produce dealers in these places often carry on a combined receiving, jobbing, and commission business. They may receive many cars of cabbage direct from shipping points, buying them through a broker in the largest near-by market, or perhaps directly from a country shipper or association; or they may have them reshipped from the distributing center. Some of these dealers can handle only a few car lots during the season, mostly storable cabbage, but may take early cabbage in car lots when demand is active enough to insure the sale of large lots quickly. At other times they buy less than car lots directly from the receivers and jobbers in the large market. Outside dealers are likely to buy cabbage in smaller lots when prices are high. To supply these small-lot orders requires unloading of many cars in the large markets. This is one reason why unloadings at large markets are often surprisingly heavy in the seasons when crops are short and prices high.

SPECIAL FEATURES OF GREAT MARKETS.

The methods of handling and distributing cabbage in the large cities are much the same. The following brief accounts of several leading cabbage markets will indicate some distinguishing features:

Early cabbage received at New York arrives at the railroad piers in half-barrel hampers or barrel crates. It is sold in large lots, often in straight carloads to jobbers. The late crop arrives almost entirely in bulk and is handled by another group of receivers. The jobbers put up the late cabbage in barrels and sacks. According to the most reliable estimates obtainable, about 5 per cent of the cabbage supply at New York is from adjoining producing sections and is delivered in trucks and wagons. Most of the main-crop cabbage is sold on

commission, while the larger proportion of early cabbage is bought outright at country shipping points. The commission rate is from 5 to 10 per cent and is somewhat higher on late stock than on early.

Most of the cabbage received at Boston is bought from country shippers, often through brokers. Nearly all late cabbage and practically all early cabbage is sold for a delivered price. It is hauled from the car in wagons, which are backed up to the curb at the receiver's store. The load remains there until it is sold, when it is driven to the buyer's store and unloaded. Some late cabbage is received at the railroad potato house in Charlestown, where it is barreled or bagged and sold through the stores. In this case the buyer, who is usually a jobber or a small wholesaler, does the hauling. If bought by an out-of-town dealer, the purchase is hauled to the freight depot or delivered to a truck at a convenient place.

Sales on commission apply chiefly to Virginia and Maryland receipts and sometimes to shipments from western New York. The commission charged is 5 to 10 per cent of sale price. The shippers are charged for freight and for hauling from the railroad yard to the receiver's store. If it is bulk cabbage, the cost of barreling at the yards is added. About one-fifth of the Boston supply is home grown. It is handled mostly by jobbers and commission dealers. Much cabbage is reshipped in small lots to cities within 50 miles.

Selling methods for cabbage are much the same in Philadelphia as in New York. Philadelphia receives the equivalent of 500 to 600 carloads of cabbage by wagon or truck from New Jersey trucking sections in summer. Several individual firms are employed as receiving agents by growers' associations; certain concerns deal heavily in Florida stock; others in South Carolina cabbage, while still others handle the greater part of the shipments from Norfolk and the eastern shore of Virginia. The usual commission is 5 to 7 per cent.

The Pittsburgh market in selling cabbage uses very much the same methods as are practiced in New York and Philadelphia. Pittsburgh is a center of supply for many of the surrounding cities which are situated in regions that produce but little cabbage for market. In 1922 about one-fourth of the arrivals were reported to have been diverted or sold to other markets within a distance of 100 miles. The car-lot receivers often sell in small lots as well as in jobbing lots. Reports indicate that more than nine-tenths of the cabbage receipts are in full cars, the rest being accounted for by less than car-lot shipments and by truck and wagon loads. Practically none of the late crop is handled on commission and very little of the early crop.

Chicago is one of the largest consuming markets for cabbage and is a center for considerable distribution to other markets. The greater portion of the receipts is in carload lots. Most of the cabbage is bought outright from country shippers. The early crop, during the first part of the season, is handled by general produce firms. Later, when the supply becomes heavier, the larger part of the receipts of both early and late cabbage is sold on track by a special group of dealers.

Several methods of delivery are in common practice. Practically all the cabbage, both early and late, arrives in bulk, and the sale by the receiver commonly includes sacks and delivery. Another common practice is to sell in bulk, the buyer handling it from the car in

bulk and packing in sacks or other packages for delivery to the retailer. The receiver charges about $2 per ton for sacking and $5 for sacking and delivery in addition to profit or commission.

St. Louis, like other mid-western markets, receives most of its cabbage in bulk. The dozen or more general produce dealers handle both early and late cabbage, two of them for kraut making. Most of the cabbage supply is bought from country shippers or their local representatives. Commission sales are usually on a 10 per cent basis or on a per-car basis of $20.

A feature of the Kansas City market is the use of 150-pound crates in which the car-lot receivers put up the bulk cabbage, both early and late. Almost the only large supply that arrives crated is the California cabbage, which comes mostly in 80-pound crates. The crates supplied by the receivers are returnable.

From the car-lot receiver, the cabbage goes to jobbers in large lots or to wholesalers in small lots. Generally there is a price difference of 25 to 50 cents per 100 pounds between large and small lot sales. From the jobber the cabbage goes to the wholesaler and from the wholesaler to the retailer. In case the retailer does not desire an entire crate, the cabbage is sacked. Should the retailer take an entire crate, the crate is returnable to the wholesaler who, in turn, returns it to the jobber or car-lot receiver.

The early cabbage season usually ends in June or July when the home-grown stock begins to arrive on the market in quantities large enough to supply the local demand. Possibly 10 to 15 per cent of the total quantity consumed is home grown.

Kansas City supplies late cabbage in car lots to Oklahoma, Arkansas, and Kansas, southern Missouri, and early cabbage to Nebraska, Iowa, southern Illinois, and Missouri.

Fort Worth is one of several rather important Texas cabbage markets, which are much alike in their sources of supply and their methods of disposal. This city is a fairly large canning market and is also a distribution center of some importance for Texas cabbage. Fort Worth brokers sell car lots destined for Shreveport, Memphis, St. Louis, Kansas City, Denver, and sometimes beyond. There is also the usual trade in small lots sold by wholesalers to small dealers in adjacent towns. The early cabbage is from the Rio Grande Valley, and the late cabbage is from Colorado. There is also some home-grown cabbage for local use in summer and fall, which is sold by the growers to the wholesalers. Nearly all cabbage except that from California comes in bulk, is crated by the wholesaler and is usually sold by the 100 pounds.

MARKET PREFERENCES AND SPECIALTIES.

There is little evidence of choice between the various kinds of early cabbage in any of the large markets, although the more compact flat varieties are sometimes quoted at higher prices than the pointed, probably because of less waste during marketing. Late cabbage of the compact, long-keeping Danish type sells much higher than domestic, especially toward the end of the market season for domestic, which at that time has begun to deteriorate.

Red cabbage and the curly Savoy type belong in the specialty class. The market for red cabbage is chiefly in the Middle West, while Savoy cabbage sells more freely in a few of the eastern cities. No-

where is the demand heavy or dependable. Both lines often sell higher than the standard cabbage, but any considerable increase in supply quickly gluts the markets and causes a slump in prices.

Red cabbage is firm and a good keeper. It is grown commercially in a small way in New York, Minnesota, and Wisconsin, and is usually shipped as part of a carload with other cabbage. From September to January a little early red stock is shipped from Florida, Louisiana, and Texas, usually as a part of a car lot. From 1 to 6 cars fill the yearly requirements of any of the large markets. Cities of medium size like Cincinnati or Boston take only 1 to 3 cars. Red cabbage is used for pickling and for cold slaw. Highly seasoned relishes, made of chopped red cabbage, were formerly a standard feature at free-lunch counters, but there is now little demand for that purpose. It is reported as sold mainly for home use to buyers of Italian or German descent. The city market price in small lots may be $10 per ton higher than for standard white cabbage, but shipments in full carloads may be hard to sell even at the price of white stock.

Savoy cabbage is mainly home grown, because of its rather poor carrying and keeping qualities. A little of it comes in with the new cabbage from Florida, Louisiana, California, and other early sections. The season for the main crop of Savoy is short. Its quality may be rated as choice, but it is known chiefly to French, Italian, and German consumers in the great cities. It is used for salads or is cooked like plain cabbage. The general demand is even lighter in the West than for red cabbage, but some eastern cities use Savoy in considerable quantities. The Boston market is estimated to use each year 25 to 30 cars of Savoy, mostly home grown, but a little comes from Long Island and from California.

USE OF THE MARKET REPORTS.

During the active market season, all sellers and buyers are keenly interested in market prices and conditions. During the past five years the official crop and market reports from State and national sources have extended rapidly in scope and circulation. Daily cabbage reports sent free on application are issued by the market stations of the United States Department of Agriculture at Washington, New York, Philadelphia, Boston, Pittsburgh, Cincinnati, Chicago, St. Louis, Kansas City, Minneapolis, and Los Angeles during the most active part of the market season. Telegraphic summaries are published in many newspapers. Brief daily reports are sent out by radiophone from the naval radio station near Washington. They are received through private receiving sets within about 350 miles and are then distributed locally by telephone or otherwise. Many local stations broadcast similar reports. Field station reports by agents of the United States Department of Agriculture on duty at shipping points for the western New York section were issued from Rochester from September to March, inclusive, in the 1923-24 season, and in certain recent seasons from Greeley, Colo., Waupaca, Wis., Sanford, Fla., San Benito, Tex., Charleston, S. C., and Mobile, Ala.

To use the daily cabbage market reports to best advantage, the reader should have in mind the main general facts about the crop: (1) The estimated total production and the production of the leading commercial cabbage States, compared with the production of the last two years and with the average for five years or more; (2) the

condition of the present crop; and (3) the usual volume of shipments at the season to all markets and to the market in which he is most interested. This information may be gathered from the crop and market reports from Washington and from the weekly periodical, "Crops, and Markets," published by the United States Department of Agriculture, at Washington. Several State departments of agriculture issue this information regularly during the market season.

It is best to notice first the changes in the favorite city market, since the last report, especially any changes in prices of the leading market grade and variety—for instance, New York Danish in the East, or Wisconsin domestic or Danish in the West. If the early crop controls the market at the time, changes in price of Florida or South Carolina pointed type or Texas flat should be noted as indicators of the condition and course of the market. If the price changes seem important, explanation is to be found often in the heavy or light car lot arrivals, the condition of the cabbage, and the weather and crop conditions.

Next, a comparison should be made of the conditions in other markets, especially in the leading market of the region, in order to learn whether the changes are general. If most of the markets quoted show the same tendency, general causes should be considered, especially the number of cars shipped and whether they are increasing or decreasing. The reports from producing sections often help to explain the situation. Shipping-point prices reflect the most recent combined demand from all sources and sometimes show the general course of the market when it seems doubtful from the available city prices alone.

In general, the greater eastern cabbage markets are New York and Philadelphia. Chicago leads western markets. Pittsburgh is the most important intermediate market drawing its supply from diversified producing sections.

The "Weekly Review of Fruits and Vegetables," issued on Tuesdays from Washington and from the market stations of the United States Department of Agriculture and republished in many newspapers, affords further aid in following the course of the markets. A brief summary of the cabbage market is included also in the "Weekly Marketgrams" of the Department of Agriculture.

The field station daily reports, besides including many of the usual features of the market station reports, are of special value in their local territory for the reports of destinations of car lot shipments. These assist the shippers in deciding which markets are best able to handle further shipments, and guide them both in original shipments and in making diversions of car lots en route to market.

PRICE TENDENCIES.

The demand for cabbage is comparatively steady although the production of the crop, both early and late, is highly variable. Acreage and volume of production are subject to wide fluctuations. On the other hand, unloads at 13 cities and total shipments are comparatively stable. During the four years 1918 to 1921, inclusive, the total yearly unloads of late cabbage have varied hardly more than 500 cars (see Table 7) excepting during 1920 after the short crop season of 1919. Early cabbage unloads are more variable, but again the greatest fluctuation was due to the short crop of 1919.

The early crop quickly finds its way into the retailers' hands and the market can take only enough to satisfy its immediate demands. When arrivals are heavy, all the marketing agencies that can possibly assist are called upon to speed up the movement. Commission men, car-lot buyers, jobbers, brokers, and the whole retail organization except the small independent grocers are likely to feature cabbage sales. Cabbage consumption, however, can be increased very little in a short campaign. Consequently, heavy receipts of early stock are usually followed by severe drops in prices.

The late-crop shipments frequently can be held back for longer or shorter periods either in the country or in city storage. The price movement, while usually less fluctuating, may respond with emphasis in cases of extreme shortage or great volume of supply.

These facts explain the violent price changes from year to year and from one part of the season to another. Since the demand is fairly constant, anything that affects the supply reacts quickly on the price. Another fact tending to wide variation in price is the usually ungraded condition of the product.

The chart (fig. 29), showing the price movement of New York cabbage both on the New York jobbing market and at shipping points near Rochester, gives some idea of the speculative nature of the product. In 1919–20 a comparatively light crop in the commercial late-cabbage States, especially in New York, followed a short southern crop. Prices began to rise from the first of the shipping season and during the winter reached previously unheard-of heights. Cabbage out of country storage sold for $100 or more per ton. The spread or margin between high and low prices on the same variety was excessive, due in part to poor grading and packing. A similar price movement occurred in the late winter and spring of 1922, owing chiefly to light production and light shipments from Florida and Texas, and there was another price uplift in the spring of 1923 and also of 1924. In 1920, when the production was above normal, prices ran very low indeed, and much lower on the Chicago market than in New York.

The spread between country buyer and city jobber is rather difficult to calculate. It is by no means uniform. Generally the country high price does not reach the city low price for the variety. In times of rapid price fluctuation sharp rises or declines may occur during the week or two required for shipments to reach the distributing markets.

Prices of the early crop show wide fluctuations and are hard to classify because of the great variation in quality and condition of the supply. The price chart (fig. 30) permits comparison of the market ranges of late and early cabbage. During the three months of competition, the price of old cabbage, or the previous late crop, tends to decline as new or early cabbage becomes abundant. For the rest of the season its price changes are by no means so extreme as for early cabbage. The frequent sharp variations in the price line of the early crop are followed only sluggishly by the price trend of the late crop. In each of the three seasons the early cabbage market shows four or five fairly well-marked general movements. It begins high in January, declines with increasing supply, and tends to recover when storage stock becomes scarce and poor in March. Usually there is a fresh decline in April because of the rapidly in-

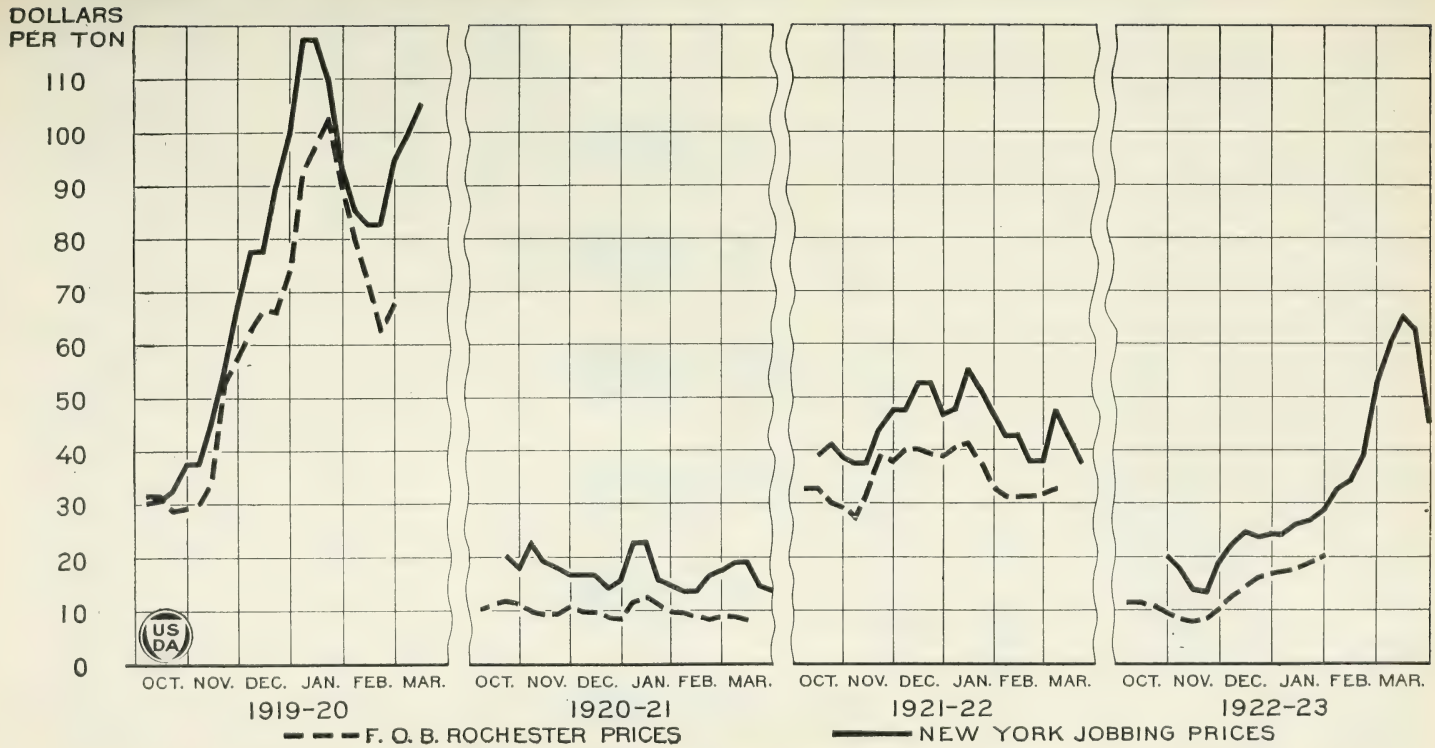

FIG. 29.—Prices of New York Danish type cabbage f. o. b. shipping point and in city market

creasing supply of the early crop. Evidently the price of early cabbage is somewhat steadied by the presence and competition of the storage supply, as the quotations applying to Virginia stock during May and June show even sharper fluctuations than those occurring during the preceding months.

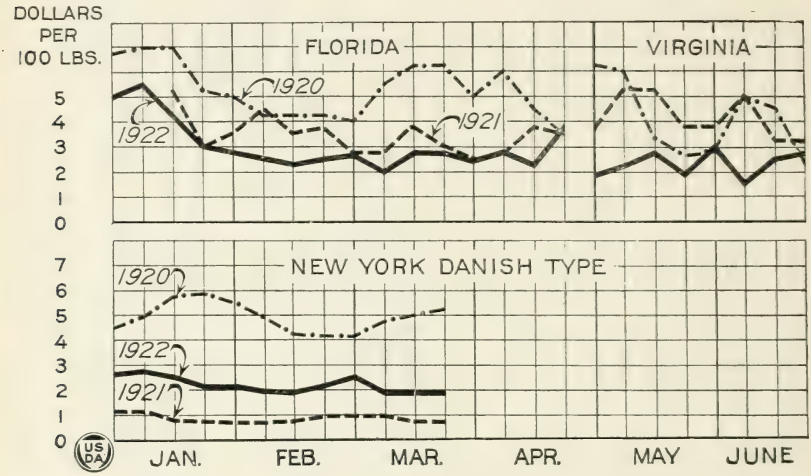

FIG. 30.—Jobbing prices of early and late cabbage in New York City.

COST OF MARKETING.

No accurate information on cost of marketing cabbage is at hand. Costs vary tremendously for different varieties of cabbage and from season to season. Hence average costs for the whole crop are of little value for market purposes. Studies of costs of marketing at wholesale 330 cars of northern and approximately 150 cars of early cabbage in 1920 and 1921 were made by the Joint Commission of Agricultural Inquiry. For these cars, the total sales were approximately $160,000. It appeared that the northern shippers received 45 per cent of the wholesale price, the California shippers 43 per cent, and the Texas shippers 12.5 per cent. Freight charges were 41 per cent for northern, 71 per cent for California, and 75 per cent for Texas cabbage. On the northern cabbage the receiving distributor apparently made about 1.75 per cent, on Texas cabbage a little over 2.5 per cent, and on the 20 cars of California cabbage he lost 17.5 per cent. Figures like these indicate the great differences in marketing costs and the folly of drawing definite conclusions from averages or incomplete studies.

No good study of the city costs of wholesale handling and retailing of cabbage has been made. Some data were collected in Boston in 1921 for the United States Department of Agriculture showing price margins or spreads of marketing charges as between wholesale and retail handlers. These are presented in Table 16 and Figure 31.

As shown by the more detailed Boston market data, approximately four-fifths of the city distributing charges between wholesale receiver and consumer went to the retailer; the other one-fifth went to the

jobber. It is well known that these charges, or "margins," as they are usually called, are not wholly profits. Out of them each agency must pay its own costs of operation. In the case of the city wholesaler, for instance, the 8 cents must pay for handling, for cartage, for salaries of warehouse and office employees, as well as for the maintenance of buildings and equipment. The various other agencies have their own costs and perform numerous and specific services such as sorting, grading, assuming risks of spoilage and waste, selling, advertising, granting credit, packaging, making deliveries, and other services required by the consumer. The margins going to the different handlers are continually changing; they change not only from time to time but from place to place.

The variation from time to time is illustrated in Table 16 and in Figure 31, which give the detailed margins for Boston over a period of six months in 1921–22.

Bearing in mind the above facts, the following general statement may be of interest. According to the incomplete price information available (Table 15), it appears that of the average dollar paid by

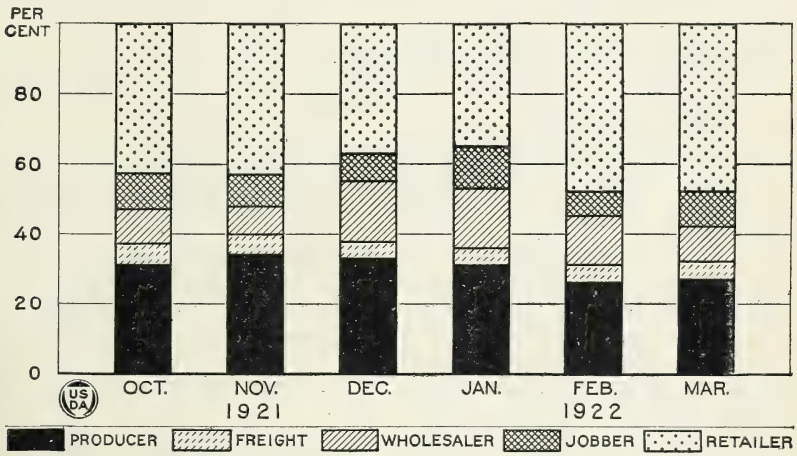

FIG. 31.—Distribution of the consumer's dollar for cabbage grown in western New York and sold in Boston.

the consumer for cabbage in 1921–22 the producer received about 24 cents, and about 4 cents went to the local buyer at the shipping point. Freight charges required 9 cents. Approximately 8 cents went to pay the receiving wholesaler, and about 55 cents to jobbers and other wholesale handlers and to retail dealers.

SUMMARY OF FACTS AND FIGURES.

COMMERCIAL CABBAGE.

Cabbage ranks third among the vegetables in commercial output. It is exceeded only by potatoes and tomatoes.

About two-fifths of the average car-lot shipments of 31,000 cars is from the South, chiefly from Florida, Texas, South Carolina, and Virginia. The rest of the car-lot movement is from the North and West, mainly from New York, Wisconsin, Minnesota, Michigan, Colorado, and California, and consists of about equal parts of the

short-season domestic cabbage and the hard, long-keeping Danish type. Early and late cabbage actively compete in the market from January to April.

The southern crop is financed chiefly by loans or credit. Growers borrow from dealers and dealers from banks. The late northern crop receives comparatively little special financing.

Early southern cabbage is handled largely by dealers who advance the loans. Cooperative marketing in some sections has nearly done away with direct local buying. The main northern crop is sold chiefly to local dealers and agents and to manufacturers of kraut.

Early cabbage is sometimes trimmed and crated in the field or in the field packing shed and hauled to the dealer's car; although in some sections it is sold by the crate or hamper, or hauled in bulk and sold by the wagonload on a ton basis. The 1½ bushel hamper and the crate of 3 bushels or barrel capacity are standard packages in general use, but there are many variations in size and style of containers.

The local buyer or the marketing association sells to city dealers, f. o. b. shipping point cash or payment on delivery at destination. The city buyer divides the car-lot into smaller quantities for sales to jobbers who in turn sell in still smaller lots to retail stores.

Late cabbage is sold in bulk by the ton, delivered in wagonloads to the local buyer or shipper. Shipments are made in slatted box cars or refrigerator cars.

The car-lot cabbage constitutes about half the crop and is sent mostly to city distributing markets. The rest of the crop is accounted for by local consumption, by kraut making, and by culls or waste on the farm.

The eastern and southeastern crop goes chiefly to eastern cities; the southwestern and north-central crop to the Middle West.

Kraut making requires about one-seventh of the average commercial production. The chief kraut manufacturing centers are in New York, Wisconsin, and Michigan.

Nearly half the late commercial crop of New York and Wisconsin is stored for the winter market.

The price of cabbage is subject to great fluctuations because of variations in supply; but the demand, especially for late cabbage, is fairly uniform from season to season.

Crop and market reports from Federal and State sources are now generally available and are often of great service in marketing.

TABLE 1.—*Features of the commercial early crop.*

States.	Leading varieties.	Average yield per acre, 1918–1922.	Production, 5-year average.	Shipments, 5-year average.	Leading counties.	Leading shipping stations.	Active harvesting season.
		Tons.	*Tons.*	*Carloads.*			
Florida	Charleston Wakefield, Succession, Long Island Second Early.	6.2	49,500	2,914	Alachua, Sumter, Polk, Seminole, Manatee, Lake.	Coleman, Bartow, Palmetto, Sanford, Evinston, Micanopy.	Dec. 15–May 1.
Texas	Early domestic flat varieties	5.0	44,700	2,453	Cameron, Hidalgo	Laredo, Austin, San Benito	Dec. 1–May 15; mostly Jan. 15–May 15.
South Carolina	Charleston Wakefield, Early Flat Dutch.	8.0	27,000	2,242	Charleston, Berkeley, Dorchester, Colleton.	Meggett, Charleston	Apr. 15–May 25.
Virginia	do	7.3	25,700	1,545	Norfolk, Northampton, Accomac	Port Norfolk, Cobbs, Eastville	May 15–July 15.
California	Winnigstadt, Cannonball	5.8	42,200	1,034	Los Angeles, Orange	Los Angeles, San Francisco	All the year; heaviest Feb.–May.
Mississippi	Jersey Wakefield, Charleston Wakefield.	6.1	13,900	957	Copiah	Crystal Springs, Gallman, Hazlehurst, Utica, Terry, Wesson, Georgetown, Hopewell.	Apr. 15–June 10.

States.	Grower's usual basis of sale.	Usual buyers, or means of sale.	Dealer's usual terms of sale.	How put up.	Main shipping season.	Leading markets.
Florida	Wagonloads; cash per crate.	Local dealers, agents, and associations.	F. o. b. "usual terms."	1½-bushel hamper	Jan. 1–Mar. 15; Feb. 15–May 1.	New York, Boston, Philadelphia, Baltimore.
Texas	Wagonloads; bulk, per ton.	Local dealers, agents, traveling buyers, associations.	Carloads f. o. b. "usual terms" and f. o. b. track.	90 per cent bulk per ton.	Jan. 15–June 1	St. Louis, Kansas City, Chicago, Pittsburgh, Cincinnati.
South Carolina	Per crate, f. o. b. less commission.	Large associations, local dealers, consignment.	"F. o. b., "usual terms."	Barrel crates	Apr. 15–May 25	New York, Philadelphia, Washington, Baltimore, Boston.
Virginia	Per crate on delivery	Cooperative associations, local dealers	F. o. b., cash track	do	May 15–July 15	New York, Philadelphia, Baltimore, Boston, Washington.
California	Bulk per ton on delivery.	Local dealers, agents	Carloads f. o. b., "usual terms."	Crates, various	For early crop, Jan. 1–June 15	St. Louis, Chicago, Kansas City, Omaha.
Mississippi	Wagonloads, per barrel crate, on delivery.	do	F. o. b., cash track, and "usual terms."	100-pound crates	Apr. 18–June 20	Chicago, St. Louis, Pittsburgh.

[1] Per 70–80-pound crate.

TABLE 2.—*Features of the commercial main-crop.*

States.	Leading varieties.	Average yield per acre (1918–1922).	Production 5-year average.	Shipments, 5-year average.	eading counties.	Leading shipping stations.	Active harvesting season.
		Tons.	*Tons.*	*Carloads.*			
New York	Enkhuizen, Copenhagen, Ballhead, Flat Dutch.	8.5	222,400	8,655	Onondaga, Ontario, Monroe, Cortland, Orleans, Wayne.	Seneca Castle, Aloquin, Tully, Homer, Hall.	Sept.–Nov.
Wisconsin	Succession, All Season, Ball head, Short Stem, Holland.	8.4	115,400	4,045	Racine, Outagamie	Racine, Corliss, Shiocton, Somers	Aug.–Nov.
Colorado	Copenhagen, Enkhuizen, Hollander.	11.5	50,500	2,089	Denver, Weld	Denver, Brighton, Fort Lupton, Eaton, Greeley, Ault.	July–Oct.
Washington	Wakefield, Flat Dutch, Ballhead.	8.9	8,700	95	Pierce, King, Spokane, Walla Walla.	Walla Walla, Kent, Tacoma	June–Nov.

States.	Usual buyers, or means of sale	Basis of sale by growers.	How put up.	Main shipping season.	Leading markets.
New York	Local shippers, storage operators, kraut makers.	Cash to growers for wagonloads per ton.	Bulk; Few in bags	Sept.–Mar	New York, Philadelphia.
Wisconsin	Local shippers, storage, kraut makers.	do	Bulk; few in bags; early stock in crates.	Aug.–Mar	Chicago, St. Louis, Kansas City.
Colorado	Local shippers, cooperative associations.	Cash to growers per 100 pounds.	Early in large crates, late in bulk.	July–Feb	Kansas City, Fort Worth.
Washington	Shipped to commission dealers.	City wholesale less charges.	Early in crates; late in bulk and crates.	June–Dec	Seattle, Tacoma, Portland, Spokane.

TABLE 3.—*Commerciat acreage, production, and shipments, by seasons: 1918–1922.*

EARLY.

States.	1918			1919			1920			1921			1922			5-year average.		
	Acreage.	Production, cars.[1]	Shipments, cars.	Acreage.	Production, cars.[1]	Shipments, cars.	Acreage.	Production, cars.[1]	Shipments, cars.	Acreage.	Production, cars.[1]	Shipments, cars.	Acreage.	Production, cars.[1]	Shipments, cars.	Acreage.	Production, cars.[1]	Shipments, cars.
Alabama	1,500	936	863	810	456	421	1,085	680	304	1,600	1,024	1,006	2,200	1,496	1,460	1,439	918	811
California	6,503	2,600	1,481	6,834	2,184	1,185	7,860	4,464	892	7,315	4,096	954	7,325	3,520	658	7,168	3,373	1,034
Florida	9,135	3,872	3,774	4,417	2,120	1,539	9,285	5,048	4,749	5,367	2,576	1,516	11,060	6,192	2,991	7,853	3,962	2,914
Louisiana	1,200	288	277	1,574	504	191	1,605	1,056	179	1,585	808	358	1,955	936	425	1,584	718	286
Maryland	2,090	1,408	62	2,072	1,328	254	2,185	1,016	260	2,055	792	325	2,750	1,104	448	2,230	1,130	270
Mississippi	2,600	1,184	1,128	1,608	704	566	1,810	1,216	884	1,365	656	577	4,460	1,784	1,629	2,369	1,109	957
South Carolina	3,500	2,240	1,893	2,023	1,216	1,146	1,993	1,176	1,427	3,968	3,080	3,406	5,148	3,088	3,340	3,326	2,160	2,242
Tennessee	310	216	117	624	296	175	575	184	141	655	320	176	1,430	800	563	719	363	234
Texas	6,650	424	288	4,615	1,848	1,430	16,250	6,240	4,832	11,210	3,584	1,670	14,425	5,768	4,043	10,630	3,573	2,453
Virginia	3,050	1,784	1,415	2,587	1,344	1,018	2,840	1,320	559	4,195	2,952	2,826	4,500	2,880	1,909	3,434	2,056	1,545
Total	36,538	14,952	11,298	27,164	12,000	7,925	45,488	22,400	14,227	39,315	19,888	12,814	55,253	27,568	17,466	40,752	19,362	12,746

INTERMEDIATE.

Illinois	1,470	944	269	1,515	608	159	1,605	1,040	148	1,325	528	100	975	624	144	1,378	749	164
Iowa	1,840	1,032	388	786	280	205	1,050	672	378	605	240	140	1,540	984	566	1,164	642	336
Kentucky	200	144	108	348	240	185	350	184	128	350	168	98	300	144	73	310	176	118
Missouri	610	456	45	694	448	144	725	464	4	700	456	99	700	392	16	686	443	62
New Jersey	3,828	2,664	58	3,895	2,336	65	4,522	2,928	109	4,220	2,192	29	4,500	2,880	68	4,193	2,600	66
Ohio	2,800	1,568	576	2,044	1,144	283	2,535	2,008	343	1,883	904	335	2,035	1,304	589	2,259	1,386	425
Virginia	2,045	1,456	510	2,206	1,320	490	2,575	2,512	976	2,500	1,200	773	4,155	2,992	1,038	2,696	1,896	757
Washington	890	512	2	1,051	840	92	1,026	840	107	920	592	170	950	688	104	967	694	95
Total	13,683	8,776	1,956	12,539	7,216	1,623	14,388	10,648	2,193	12,503	6,280	1,744	15,155	10,008	2,598	13,653	8,586	2,023

LATE.

Colorado	4,220	3,040	1,929	4,003	3,200	2,313	4,390	5,304	1,672	3,995	3,736	2,564	5,145	4,936	1,964	4,351	4,043	2,089
Indiana	1,400	920	164	1,232	624	30	1,240	976	87	1,090	520	19	1,335	744	34	1,259	757	67
Michigan	3,750	3,056	416	2,069	1,128	374	1,970	1,688	369	1,612	840	465	3,025	2,664	908	2,485	1,875	506
Minnesota	2,070	1,544	1,019	2,937	1,880	944	3,003	2,136	861	2,651	1,064	583	3,471	2,496	1,192	2,827	1,804	920
New York	30,514	22,216	9,200	23,509	12,224	6,181	26,597	24,680	8,357	22,895	11,904	9,268	24,895	17,928	10,270	25,682	17,790	8,655
Oregon	730	408	10	775	680	23	820	504	8	775	592	47	900	504	1	800	538	18
Pennsylvania	2,757	1,984	183	2,740	1,752	349	2,905	2,392	233	2,720	1,304	303	2,805	1,568	406	2,785	1,800	295
Wisconsin	11,500	7,360	3,411	12,238	7,048	3,219	15,137	12,112	4,903	10,540	5,056	2,820	16,575	14,584	5,874	13,198	9,232	4,045
Total	56,941	40,528	16,332	49,503	28,536	13,433	56,062	49,792	16,490	46,278	25,016	16,069	58,151	45,424	20,649	53,387	37,859	16,595
Other States	4,775	336	250	5,092	256	269	5,483	3,400	219	5,165	2,696	486	6,038	4,832	628	5,311	2,304	370
Grand total	111,937	64,592	29,836	94,298	48,008	23,250	121,421	86,240	33,129	103,261	53,880	31,113	134,597	87,832	41,341	113,103	68,111	31,734

[1] Estimated on basis of 12.5 tons per carload.

TABLE 4.—*Carlot shipments, by seasons: 1918–1922.*

States.	Shipping season.	1918–19	1919–20	1920–21	1921–22	1922–23	Total.	Average.
Early shipping.								
Alabama (first crop)	Mar. 15–June 1	859	417	261	896	1,254	3,687	737
Alabama (second crop)	Dec. 20–Mar. 15	4	4	43	110	206	367	73
California, southern district (first crop).	Jan. 1–Mar. 15	573	506	580	482	353	2,494	499
California, southern district (second crop).	Mar. 15–June 15	492	439	220	353	130	1,634	327
California, northern district (first crop).	Jan. 10–Apr. 1	104	27	48	41	34	254	51
California, northern district (second crop).	June 1–Sept. 1	312	213	44	78	141	788	158
Florida	Jan. 1–May 15	3,774	1,539	4,749	1,516	2,991	14,569	2,914
Louisiana (first crop)	Jan. 5–Mar. 15	208	118	164	290	274	1,054	211
Louisiana (second crop)	Mar. 15–June 1	69	73	15	68	151	376	75
Maryland	June 1–June 30	62	254	260	325	448	1,349	270
Mississippi	May 1–June 15	1,128	566	884	577	1,629	4,784	957
South Carolina (first crop)	Apr. 1–May 31	1,867	1,146	1,085	2,912	2,741	9,751	1,950
South Carolina (second crop)	Dec. 20–Mar. 15	26	0	342	494	599	1,461	292
Tennessee	June 1–June 30	117	175	141	176	563	1,172	234
Texas	Dec. 15–June 1	288	1,430	4,832	1,670	4,043	12,263	2,453
Virginia, Eastern Shore (first crop).	May 15–June 30	289	166	204	638	640	1,937	387
Virginia, Norfolk section (first crop).	May 15–June 30	1,126	852	355	2,188	1,269	5,790	1,158
Intermediate.								
Illinois	June 15–Nov. 1	269	159	148	100	144	820	164
Iowa	July 15–Nov. 1	388	205	378	140	566	1,677	335
Kentucky	June 10–July 10	108	185	128	98	73	592	118
Missouri	June 15–July 1	45	144	4	99	16	308	62
New Jersey	June 15–July 20	58	65	109	29	68	329	66
Ohio	June 15–Nov. 1	576	283	343	335	589	2,126	425
Virginia	July 20–Oct. 20	510	490	976	773	1,037	3,786	757
Washington	June 15–Dec. 1	2	92	107	170	104	475	95
Late shipping.								
Colorado	Aug. 4–Nov. 15	1,929	2,313	1,672	2,564	1,964	10,442	2,088
Indiana	Aug. 15–Nov. 10	164	30	87	19	34	334	67
Michigan	Sept. 1–Mar. 1	416	374	369	465	908	2,532	506
Minnesota	Aug. 1–Dec. 15	1,019	944	861	583	1,192	4,599	920
New York	Aug. 20–Apr. 10	9,200	6,181	8,357	9,268	10,270	43,276	8,655
Pennsylvania	Sept. 1–Mar. 1	183	349	233	303	406	1,474	295
Wisconsin	Sept. 1–Mar. 10	3,411	3,219	4,903	2,820	5,874	20,227	4,045

TABLE 5.—*Monthly shipments in car lots, by seasons: Early, second, and late crops.*[1]

Year and crop.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
1918.																				
Early			6	94	715	1,340	3,146	3,734	1,372	34	20	19	12	8						
Second	23	32	17	188	104	56	81													
Total	23	32	23	282	819	1,396	3,227	3,734	1,372	34	20	19	12	8						
Late									222	611	1,285	3,241	5,031	3,282	1,315	1,660	1,046	683	38	2
1919.																				
Early			30	282	707	960	1,755	2,465	990	22	9	3	3							
Second	8	8	26	240	264	334	39													
Total	8	8	56	522	971	1,294	1,794	2,465	990	22	9	3	3							
Late								2	448	535	1,134	2,427	5,122	2,383	1,261	1,209	522	182	20	2
1920.																				
Early		2	33	494	1,747	2,982	3,912	2,939	1,334	157	19	2								
Second	12	26	52	228	249	164	3													
Total	12	28	85	722	1,996	3,146	3,915	2,939	1,334	157	19	2								
Late									174	455	1,076	1,783	5,383	4,544	1,319	2,214	1,127	652	69	1
1921.																				
Early			27	467	860	2,150	4,018	3,185	1,267	31	13	5	5							
Second	16	63	9	171	306	127	13													
Total	16	63	36	638	1,166	2,277	4,031	3,185	1,267	31	13	5	5							
Late									460	428	1,379	2,809	5,452	2,541	1,841	1,980	926	262	22	
1922.																				
Early		2	114	930	1,859	3,629	3,869	3,984	1,536	48	2									
Second	16	71	18	338	295	276	12													
Total	16	73	132	1,268	2,154	3,905	3,881	3,984	1,536	48	2									
Late									745	612	1,434	3,519	6,934	3,682	2,233	2,144	1,285	685		

[1] Total shipments for seasons do not agree exactly with totals for corresponding seasons shown in other tables, as the seasonal tabulations customarily begin with December, while in this table a more exact segregation of crops has been followed, beginning with October.

TABLE 6.—*Carlot shipments during storage season.*

States.	Year.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Storage season total.	Entire season total.
Wisconsin	1918	736	265	354	201	50	2	.....	1,608	3,411
	1919	338	231	219	96	3	.....	.....	887	3,219
	1920	1,155	460	640	289	112	1	.....	2,657	4,903
	1921	373	282	360	135	12	.....	.....	1,162	2,820
	1922	886	593	658	213	59	.....	.....	2,409	5,874
Average	.....	698	366	446	187	47	1	.....	1,745	4,045
New York	1918	1,978	974	1,237	804	598	34	.....	5,625	9,200
	1919	1,687	947	945	412	178	18	1	4,188	6,181
	1920	2,704	782	1,504	796	506	63	.....	6,355	8,357
	1921	1,784	1,324	1,550	766	256	22	.....	5,702	9,268
	1922	2,228	1,499	1,393	1,084	580	26	1	6,811	10,270
Average	.....	2,076	1,105	1,326	772	424	33	.....	5,736	8,655
Minnesota	1918	177	13	13	2	2	.....	1	208	1,019
	1919	30	1	1	.....	.....	.....	.....	32	944
	1920	81	16	14	5	5	4	.....	125	861
	1921	34	7	14	.....	1	.....	.....	56	583
	1922	154	41	35	14	2	.....	.....	246	1,192
Average	.....	95	16	15	4	2	1	.....	133	920
Michigan	1918	69	13	9	9	2	.....	.....	102	416
	1919	46	15	9	.....	.....	.....	.....	70	374
	1920	89	2	12	12	19	.....	.....	134	369
	1921	25	14	25	9	2	.....	.....	75	465
	1922	109	28	47	18	8	.....	.....	210	908
Average	.....	68	14	20	10	6	.....	.....	118	506
Pennsylvania	1918	42	3	21	16	16	.....	.....	98	183
	1919	158	19	16	3	.....	.....	.....	196	349
	1920	161	25	7	4	1	.....	1	199	233
	1921	71	14	18	5	2	.....	.....	110	303
	1922	77	19	34	29	20	.....	.....	179	406
Average	.....	102	16	19	11	8	.....	.....	156	295
Total	1918	3,002	1,268	1,634	1,032	668	36	1	7,641	14,229
	1919	2,259	1,213	1,190	511	181	18	1	5,373	11,067
	1920	4,190	1,285	2,177	1,106	643	68	1	9,470	14,723
	1921	2,287	1,641	1,967	915	273	22	.....	7,105	13,439
	1922	3,454	2,180	2,167	1,358	669	26	1	9,855	18,650
Average	.....	3,038	1,517	1,827	984	487	34	1	7,889	14,422

TABLE 7.—*Annual carlot shipments and unloads in 12 cities 1918–1921, and Boston, 1920–1921.*

Cities.	Early unloads.					Late unloads.					Total unloads.					
	1918	1919	1920	1921	Average.	1918	1919	1920	1921	Average.	1918	1919	1920	1921	1922	Per cent of total average for 12 cities.
New York	1,849	1,443	1,749	1,937	1,744	1,031	858	557	1,093	885	2,880	2,301	2,306	3,030	2,629	25.1
Philadelphia	864	651	1,028	974	879	1,072	1,011	878	988	987	1,936	1,662	1,906	1,962	1,866	17.8
Pittsburgh	464	406	425	404	425	1,206	766	872	701	886	1,670	1,172	1,297	1,105	1,311	12.5
Cincinnati	206	110	274	213	201	369	447	322	456	398	575	557	596	669	599	5.7
Cleveland	210	188	283	211	223	426	315	334	294	342	636	503	617	505	565	5.4
Detroit	122	151	234	203	178	101	54	56	59	68	223	205	290	262	245	2.3
Chicago	771	831	860	783	811	551	1,006	495	997	762	1,322	1,837	1,355	1,780	1,574	15.0
Minneapolis	51	44	108	44	62	6	5	13	31	14	57	49	121	75	76	.7
St. Paul	41	37	34	32	36	13	16	40	36	26	54	53	74	68	62	.6
Omaha	47	84	102	.....	78	164	137	98	.....	133	211	221	200	.....	211	2.0
St. Louis	216	180	318	299	253	642	566	546	750	626	858	746	864	1,049	879	8.4
Kansas City	136	101	147	144	132	444	320	252	256	318	580	421	399	400	450	4.3
Total	4,977	4,226	5,562	[1] 5,244	[2] 5,022	6,025	5,501	4,463	[1] 5,661	[2] 5,445	11,002	9,727	10,025	[1] 10,905	[2] 10,467	.....
Boston	.....	.....	569	607	588	.....	.....	252	237	244	.....	.....	821	844	832	7.9
All States:																
Early shipments	11,505	9,017	15,462	13,800	12,446	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Late shipments	.....	.....	.....	.....	.....	17,156	15,965	15,558	17,918	16,649	.....	.....	.....	.....	.....	.....
Total shipments	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28,661	24,982	31,020	31,718	29,095	.....

[1] No figures available for Omaha 1921.

[2] Total includes 3-year average for Omaha.

TABLE 8.—*Carlot unloads at 12 cities 1918–1921, and Boston 1920–1921, compared with population of city and territory within distance of 10 miles.*

Cities.	Population, within ten miles.	Per cent of population of 12 cities.	Per cent of total urban population.	Average annual unloads 1918–1921.	Equivalent in tons.	Per cent of unloads at 12 cities.	Tons per 1,000 population.
New York	8,034,349	39.9	14.8	2,629	32,862	25.1	4.1
Chicago	3,201,301	15.9	5.9	1,574	19,675	15.0	6.1
Philadelphia	2,428,728	12.1	4.9	1,866	23,325	17.8	9.6
Detroit	1,181,057	5.9	2.1	245	3,062	2.3	2.6
Cleveland	951,579	4.7	1.8	565	7,062	5.4	7.4
St. Louis	1,014,457	5.0	1.9	879	10,988	8.4	10.8
Pittsburgh	1,216,464	6.0	2.2	1,311	16,388	12.5	13.5
Cincinnati	681,287	3.4	1.3	599	7,488	5.7	11.0
Minneapolis	679,864	3.4	1.3	76	950	0.7	2.5
St. Paul				62	775	0.6	
Kansas City	502,242	2.5	0.9	450	5,625	4.3	11.2
Omaha	249,999	1.2	0.5	[1] 211	[1] 2,638	2.0	10.6
Total	20,141,327	.....	37.1	10,467	130,838	.....	6.5
Boston	1,801,320	.....	3.3	[2] 832	[2] 10,400	.....	5.8
Grand total	21,942,647	.....	.....	11,299	141,238	.....	6.4

[1] Average for 3 years, 1918 to 1920. [2] Average for 2 years, 1920 and 1921.

TABLE 9.—*Acreage, production, annual shipments, and unloads at 12 cities: 1918–1922.*

Year.	Total acreage United States.	Total production (cars).	Total shipment (cars).	Unload at 12 cities (cars).	Shipments (percentage of production).
1918	111,937	64,592	28,661	11,002	44.4
1919	94,298	48,008	24,982	9,727	52.0
1920	121,421	86,240	31,020	10,025	36.0
1921	103,261	53,880	31,718	10,905	58.9
1922	134,597	87,832	40,065	12,474	45.6
Total	565,514	346,064	156,446	54,133	.....
5-year average	113,103	68,110	31,289	10,827	45.9

TABLE 10.—*Monthly carlot shipments of cabbage: 1918–1922.*

Month.	1918	1919	1920	1921	1922	Total.	Average.	Percentage of total for year.
January	1,498	2,182	1,931	2,852	3,344	11,807	2,361	7.5
February	1,735	2,017	2,518	2,293	3,422	11,985	2,397	7.7
March	1,790	1,977	3,328	2,929	4,185	14,209	2,842	9.1
April	3,379	1,831	3,935	4,100	3,831	17,076	3,415	10.9
May	3,734	2,469	2,941	3,186	4,006	16,336	3,267	10.4
June	1,594	1,438	1,508	1,727	2,252	8,519	1,704	5.4
July	645	557	612	459	660	2,933	587	1.9
August	1,305	1,152	1,095	1,393	1,436	6,381	1,276	4.0
September	3,261	2,465	1,791	2,818	3,523	13,858	2,772	8.9
October	5,051	5,137	5,399	5,467	7,060	28,114	5,623	18.0
November	3,298	2,411	4,607	2,560	3,817	16,693	3,338	10.7
December	1,371	1,346	1,355	1,934	2,529	8,535	1,707	5.5
Total	28,661	24,982	31,020	31,718	40,065	156,446	31,289	100.0

TABLE 11.—*Percentage of average total yearly unloads, by months, average for 13 cities and for New York, Chicago, and St. Louis.*

Months.	13 cities.		New York.		Chicago.		St. Louis.	
	Average monthly unloads, 1918–1921.[1]	Per cent yearly unloads, by months.	Average monthly unloads, 1918–1921.	Per cent yearly unloads, by months.	Average monthly unloads, 1918–1921.	Per cent yearly unloads, by months.	Average monthly unloads, 1918–1921.	Per cent yearly unloads, by months.
January	771	6.8	186	7.0	117	7.4	64	7.3
February	926	8.2	236	9.0	149	9.5	56	6.4
March	1,264	11.2	359	13.7	173	11.0	77	8.8
April	1,476	13.1	443	16.8	202	12.8	92	10.5
May	1,781	15.8	601	22.9	188	11.9	83	9.4
June	1,110	9.8	323	12.3	173	11.0	16	1.8
July	249	2.2	23	.9	67	4.3	8	.9
August	240	2.1	8	.3	46	2.9	79	9.0
September	455	4.0	28	1.1	65	4.1	104	11.8
October	933	8.3	79	3.0	95	6.0	153	17.4
November	1,267	11.2	171	6.5	163	10.4	98	11.1
December	827	7.3	172	6.5	136	8.7	49	5.6
Total	11,299	.....	2,629	.....	1,574	.....	879	.....

[1] Boston 1920–1921.

TABLE 12.—*Carlot freight rates on cabbage in 1924.*

[Unofficial and for general information only. Cents per 100 pounds.]

From—	To—				
	Chicago.	St. Louis.	Kansas City.	Fort Worth.	Cincinnati.
Racine, Wis	16½	30½	53½	99	31
Greeley, Colo	65	57	50	88	87
San Benito, Tex	95	84	84	52½	112
Los Angeles, Calif	110	110	110	110	128

From—	To—				
	New York.	Philadelphia.	Baltimore.	Boston.	Pittsburgh.
Leesburg, Fla	116	113	112	131	113
San Benito, Tex	144	142	140	149	124
Charleston, S. C	69	69	65½	97½	83½
Onley, Va	39	27	46	41½	40½
Norfolk, Va	40½	40½	31½	63½	40½
Rochester, N. Y	28½	46	28½	33½	27

[1] Standard truck barrels or standard truck barrel crates.

TABLE 13.—*Prices to jobbers of Florida Wakefield cabbage per 1½-bushel hamper.*

Year and month.	New York.	Boston.	Baltimore.	Chicago.	St. Louis.
1920—February	$2.00–2.45	$2.35–2.40	$1.65–2.50	$1.75–2.33	$1.25–1.60
March	2.50–3.05	2.62–3.13	2.50–3.10	2.19–2.88	[1] 71.00–84.00
April	2.38–3.13	2.25–2.63	2.25–2.75	.....	[1] 45.00–75.00
1921—January	1.65–2.25	[2] 2.75–3.25	2.05–2.25	.....	[1] 30.00–40.00
February	1.65–2.15	[2] 2.90–3.35	1.70–1.95	.....	[1] 34.00–40.00
March	1.40–1.75	[2] 1.85–2.30	1.55–1.75	[1] 39.00–40.00	[1] 33.00–42.00
April	1.00–1.50	[2] 2.65–2.75	1.25–1.50	[1] 40.00–42.00	[1] 40.00–50.00
1922—January	1.90–2.35	2.10–2.40	2.40–2.60	2.80–3.40	[1] 50.00–60.00
February	1.10–1.40	1.25–1.50	1.10–1.25	2.25–2.60	[1] 32.50–38.75
March	1.10–1.35	1.10–1.45	1.20–1.40	1.80–2.25	[1] 30.75–38.75
April	1.15–1.40	.85–1.10	1.25–1.45	1.95–2.20	[1] 37.50–47.00
1923—January	2.25–2.56	[3] 3.81	2.31–2.54	.....	[1] 56.65–61.65
February	2.56–2.94	[3] 4.62–5.00	2.68–3.00	[4] 3.50–4.06	[1] 65.00–70.00
March	3.00–3.31	[3] 5.62–5.94	2.98–3.38	[4] 4.62–5.38	[1] 82.50–105.00
April	2.00–2.50	.....	2.00–.275	.....	.....

[1] Texas bulk per ton. [2] Bulk per 100 pounds. [3] Barrel crates. [4] Texas cabbage—barrel crates.

TABLE 14.—*Prices to jobbers of New York and Northern Danish type cabbage, bulk per ton.*

Year and month.	New York.	Philadelphia.	Pittsburgh.	Chicago.	St. Louis.
1919–20—October	$26.00–30.00	$28.00–35.00	$30.00–35.00	$24.00–30.00	$31.00–39.00
November	30.00–50.00	28.00–45.00	28.00–50.00	25.00–55.00	31.00–43.00
December	50.00–80.00	50.00–100.00	60.00–90.00	55.00–75.00	63.00–71.00
January	80.00–125.00	80.00–125.00	90.00–130.00	75.00–115.00	106.00–118.00
February	75.00–120.00	60.00–110.00	60.00–120.00	60.00–100.00	93.75–107.50
March	75.00–110.00	40.00–110.00	80.00–110.00	50.00–70.00	.....
1920–21—October	15.00–20.00	.....	15.00–28.00	12.00–13.00	19.50–31.50
November	14.00–25.00	12.00–25.00	13.00–30.00	7.00–15.00	12.00–18.00
December	13.00–18.00	8.00–14.00	7.00–17.00	12.00–16.00	16.00–19.00
January	14.00–25.00	15.00–30.00	15.00–30.00	16.00–25.00	18.00–28.00
February	12.00–18.00	8.00–18.00	13.00–20.00	9.50–16.50	19.00–20.00
March	12.00–20.00	8.00–18.00	10.00–16.00	11.25–12.75	20.00–25.00
1921–22—October	38.00–41.00	33.00–49.00	32.00–35.00	39.00–44.00	40.00–47.50
November	39.00–44.50	33.00–42.50	48.50–52.50	45.00–55.00	44.00–50.00
December	47.50–52.00	44.00–51.00	52.50–55.00	45.60–53.00	49.00–54.00
January	48.00–54.00	43.75–57.50	49.00–56.00	42.00–47.00	47.50–53.75
February	36.00–44.00	34.50–41.00	41.50–45.00	32.00–41.00	27.50–45.50
March	29.00–46.00	40.00–47.50	50.00	.....	25.00
1922–23—October	18.00–22.00	17.50–19.00	21.75–25.00	7.50–9.50	15.00–20.00
November	13.00–18.00	10.50–16.75	12.00–17.00	12.00–12.50	11.00–15.00
December	22.00–25.00	12.00–17.00	21.75–26.00	20.00–24.00	23.00–27.50
January	23.75–28.75	18.00–24.50	22.50–25.00	23.00–27.00	22.50–31.50
February	37.00–43.00	12.00–26.00	34.00–40.00	43.25–50.50	45.00–56.25
March	54.00–64.00	20.00–30.00	46.00–71.00	53.00–65.00	60.00–75.00

TABLE 15.—*Distribution of the consumer's dollar.*

Period.	Route.	Apportionment (in cents) of retail dollar.			
		Price f. o. b. shipping point.	Freight.	Wholesale dealer.	Intermediate and retail dealers.[1]
October, 1921–January, 1922	Wisconsin to Chicago	35	3	6	56
Do.	Wisconsin to St. Louis	39	5	6	50
Do.	Wisconsin to Kansas City	36	6	10	48
October, 1921–March, 1922	Rochester to New York City	34	5	4	57
Do.	Rochester to Philadelphia	34	6	2	58
Do.	Rochester to Boston	30	5	13	[2] 52
January–April, 1922	Texas to Kansas City	15	18	12	57
Do.	Texas to St. Louis	17	18	8	57
Do.	Texas to Chicago	15	18	11	56
Average		28	9	8	55

[1] In all the markets except Boston it was found impossible to obtain accurate prices for many intermediate steps between receiving wholesaler and retailer; hence separate intermediate and retail margins. The difference between the wholesale and the retail price are shown as one margin.

[2] The retail prices used, except for Boston, are from the Bureau of Labor Statistics. All other prices used have been collected by the Bureau of Agricultural Economics.

TABLE 16.—*Distribution of the consumer's dollar* [1] *for cabbage grown in western New York and sold in Boston.*

	Apportionment (in percentages) of the retail dollar.				
	Price f. o. b. shipping point.	Freight.	Wholesale dealer.	Jobber.	Retail dealer.
October, 1921	31	6	10	10	43
November, 1921	34	6	8	9	43
December, 1921	33	5	17	8	37
January, 1922	31	5	17	12	35
February, 1922	26	5	14	7	48
March, 1922	27	5	10	10	48
Average [2]	30	5	13	10	42

[1] Prepared from prices collected by the Bureau of Agricultural Economics.

[2] Computed from average prices rather than by averaging the margins.

PUBLICATIONS ON CABBAGE.

MARKETING.

Standard containers for fruits and vegetables. By F. P. Downing, 1921. (U. S. Dept. of Agriculture. Farmers' Bulletin No. 1196.) Contains about 1½ pages on cabbage crates.
Standard grades for cabbage. By B. B. Jones, 1921. (State Division of Markets, Madison, Wis. Bulletin, v. 1, No. 6.)
Marketing Colorado cabbage. By H. E. Munger, 1919. (Colorado Agricultural Experiment Station. Bulletin 163–A.) Fort Collins, Colo.
U. S. grades for cabbage, 1922. Mimeographed. (U. S. Dept. of Agriculture, Bureau of Agricultural Economics.)
Grading and marketing Wisconsin cabbage. 1921. (Bulletin, v. 2, No. 11.) State Division of Markets, Madison, Wis.
Standard grades for cabbage and onions. By B. B. Jones, 1923. (Wisconsin State Dept. of Markets. Bulletin, v. 4, No. 5.)
Western and central New York cabbage deal, season 1922–23. Mimeographed. (U. S. Dept. of Agriculture, Bureau of Agricultural Economics.)

CULTURE AND GENERAL.

Partial directions for raising, harvesting, and storing of onions, squashes, cabbages, as applicable to Maine conditions, 1916. (Bulletin, June, 1916, vol. 15, No. 2.) Department of Agriculture, Augusta, Me.
Cabbage culture. By J. W. Rigney, 1919. (Agricultural Experiment Station, State College, N. M. Bulletin 118.)
Cabbage growing in California. By S. S. Rogers, 1915. (Agricultural Experiment Station, Berkeley, Calif., Circular 130.)
Cabbage. By L. C. Corbett, 1911. (U. S. Dept. of Agriculture. Farmers' Bulletin 433.)
Cabbage. By E. N. Reed, 1918. (New York Dept. of Farms and Markets, Albany, N. Y., Agricultural Bulletin 110.)
Cabbage production in California. By H. A. Jones, 1923. (California Agricultural Experiment Station, Berkeley, Calif., Circular 262.)
Cabbage strain tests. By H. H. Zimmerley, 1922. (Virginia Truck Experiment Station, Blacksburg, Va., Bulletin 37.)

DISEASES AND PESTS.

The common cabbage worm. By F. H. Chittenden, 1916. (U. S. Dept. of Agriculture. Farmers' Bulletin 766.)
Harlequin cabbage bug and its control. By F. H. Chittenden, 1920. (U. S. Dept. of Agriculture. Farmers' Bulletin 1061.)
The western cabbage flea-beetle. By F. H. Chittenden and H. O. Marsh. 1920. (U. S. Dept. of Agriculture. Bulletin 902.)
Cabbage and radish root maggots. By J. Davis, 1921. (Indiana Agricultural Experiment Station, Leaflet 123.) Lafayette, Ind.
Yellow disease of cabbage in southwest Virginia. By F. O. Fromme, 1921. (Virginia Agricultural Experiment Station, Blacksburg, Va. Bul. 225.)
Cabbage yellows. By C. T. Gregory, 1922. (Agricultural Experiment Station, Lafayette, Ind. Bulletin 104.)
Cabbage diseases. By L. L. Harter and L. R. Jones, 1921. (U. S. Dept. of Agriculture. Farmers' Bulletin 925.)
The cabbage hair-worm. By F. H. Chittenden, 1905. (U. S. Dept. of Agriculture, Bureau of Entomology. Circular 62.)
Cabbage maggot. Its biology and control. By W. J. Schoene, 1916. (New York State Agricultural Experiment Station, Geneva, N. Y., Bulletin 419.)
Cabbage maggot, with special reference to its control. By G. W. Herrick and W. Colman, 1922. (Cornell Experiment Station, Ithaca, N. Y., Bulletin 413.)
Cabbage wilt and stem rot in Delaware. By T. F. Manns, 1922. (Delaware Agricultural Experiment Station, Newark, Del., Bulletin 132.)
Common cabbage worm in Wisconsin. By H. F. Wilson, 1919. (Wisconsin Agricultural Experiment Station, Madison, Wis., Research Bulletin 45.)
Diseases of cabbage and related crops and their control. By L. L. Harter, 1912. (U. S. Dept. of Agriculture. Farmers' Bulletin 488.)
The imported cabbage web-worm (*hellula undalis* Fab.). By F. H. Chittenden and H. O. Marsh, 1912. (U. S. Dept. of Agriculture, Bureau of Entomology. Bulletin No. 109, pt. 3. Papers on insects affecting vegetables.)
Surface treatment for the cabbage maggot. By W. C. O'Kane and others, 1923. (Agri. Experiment Station, Durham, N. H. Technical Bulletin 24.)

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.

January 18, 1924.

Secretary of Agriculture	HENRY C. WALLACE.
Assistant Secretary	HOWARD M. GORE.
Director of Scientific Work	E. D. BALL.
Director of Regulatory Work	WALTER G. CAMPBELL.
Director of Extension Work	C. W. WARBURTON.
Solicitor	R. W. WILLIAMS.
Weather Bureau	CHARLES F. MARVIN, *Chief.*
Bureau of Agricultural Economics	HENRY C. TAYLOR, *Chief.*
Bureau of Animal Industry	JOHN R. MOHLER, *Chief.*
Bureau of Plant Industry	WILLIAM A. TAYLOR. *Chief.*
Forest Service	W. B. GREELEY, *Chief.*
Bureau of Chemistry	C. A. BROWNE, *Chief.*
Bureau of Soils	MILTON WHITNEY, *Chief.*
Bureau of Entomology	L. O. HOWARD, *Chief.*
Bureau of Biological Survey	E. W. NELSON, *Chief.*
Bureau of Public Roads	THOMAS H. MACDONALD, *Chief.*
Bureau of Home Economics	LOUISE STANLEY, *Chief.*
Fixed Nitrogen Research Laboratory	F. G. COTTRELL, *Director.*
Publications	L. J. HAYNES, *In Charge.*
Library	CLARIBEL R. BARNETT, *Librarian.*
Federal Horticultural Board	C. L. MARLATT, *Chairman.*
Insecticide and Fungicide Board	J. K. HAYWOOD, *Chairman.*
Packers and Stockyards Administration *Grain Futures Administration*	CHESTER MORRILL, *Assistant to the Secretary.*

This bulletin is a contribution from

Bureau of Agricultural Economics	HENRY C. TAYLOR, *Chief.*
Division of Fruits and Vegetables	WELLS A. SHERMAN, *In Charge.*

ADDITIONAL COPIES
OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
AT
15 CENTS PER COPY

V